REPORT

ON A

THOROUGHFARE PLAN

FOR

BOSTON

PREPARED BY

THE CITY PLANNING BOARD

ROBERT WHITTEN, CONSULTANT

BOSTON, MASSACHUSETTS
1930

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CITY PLANNING BOARD

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Mary A. Barr
Edward H. Hoyt
Sidney S. Conrad
Ernest A. Johnson

Elisabeth M. Herlihy, *Secretary*

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Gertrude M. Ryan	Stenographer
Mary T. Downey	Stenographer and Bookkeeper

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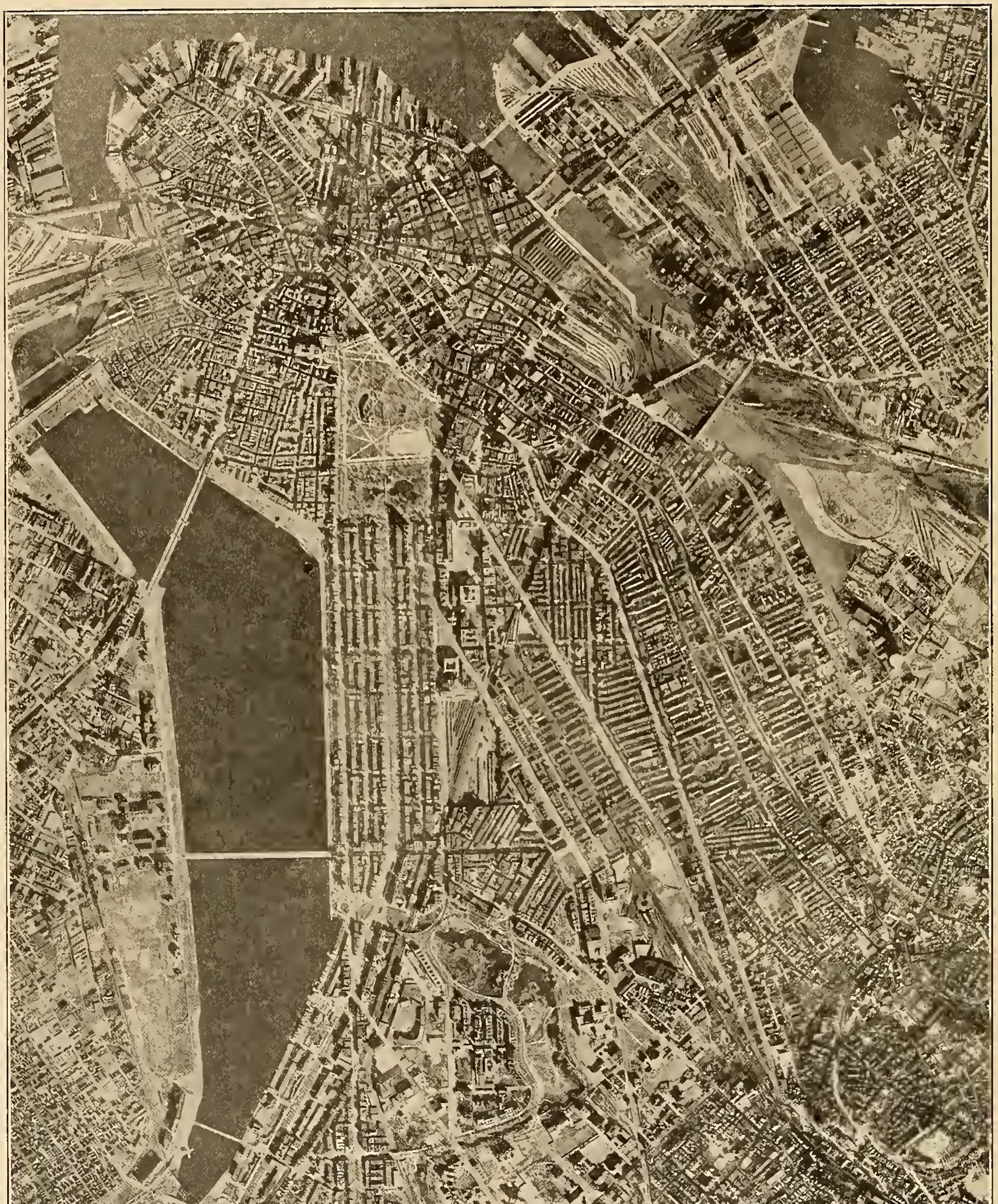


Photograph by Fairchild Aerial Surveys, Inc.

AERIAL MAP OF BOSTON PROPER, INCLUDING PARTS OF SOUTH BOSTON, ROXBURY, CAMBRIDGE AND CHARLESTOWN.

FOREWORD

Boston, April 11, 1930.

Hon. James M. Curley,

Mayor of the City of Boston.

Dear Sir:

The City Planning Board submits herewith its "Report on a Thoroughfare Plan for Boston." This action is taken in accordance with the following vote of the Board unanimously adopted April 11, 1930:

> *Voted,* That the City Planning Board approves and orders submitted to His Honor the Mayor the "Report on a Thoroughfare Plan for Boston" prepared under the direction of Robert Whitten, City Planning Consultant.

The report is the result of three years of careful investigation, during which an unusually complete traffic analysis and forecast has been prepared. The street projects proposed have been carefully designed with reference to the traffic they must carry and each project has been classified in the order of its urgency in relation to the whole program.

A definite construction program has been prepared, covering a period of twenty-five years. This is distinctly a long-term program, with no thought of proposing excessive burdens for immediate street projects or, in fact, of suggesting expenditures greatly in excess of those of the past ten years. Furthermore, the Board believes that the highway funds of the Commonwealth should be used much more liberally in the building of major arterial highways in the Boston Metropolitan area. This has been assumed in the financial plan herewith submitted.

In any event, it is clear that traffic congestion has reached a critical stage. Some way must be found to modernize our system of major traffic streets. The Board believes that provision must be made for the building of a limited but well articulated mileage of express roads. Only in this way can we expect to cope successfully with the traffic problem.

Chapter 168 of the Acts of the year 1930 provides that the Mayor of the City of Boston, upon recommendation of the City Planning Board, the Board of Street Commissioners and the Board of Park Commissioners, may adopt an official Thoroughfare Plan "designed to include a system of major traffic

streets, express roads and major traffic parkways, to meet future as well as present traffic needs in so far as they may be reasonably determined."

The City Planning Board trusts, therefore, that the present Plan will meet with your Honor's favorable consideration; that it may serve as the basis of the plan to be prepared under the provisions of chapter 168 of the Acts of the year 1930; and that it will be subjected during the next few months to careful examination and constructive criticism by public and by private interests to the end that it may be amended, supplemented, perfected and eventually approved as the Official Thoroughfare Plan of the City of Boston.

Respectfully submitted,

THE CITY PLANNING BOARD,

Frederic H. Fay, *Chairman.*
Mary A. Barr,
Sidney S. Conrad,
Edward H. Hoyt,
Ernest A. Johnson.

Elisabeth M. Herlihy,
Secretary.

LETTER OF TRANSMITTAL

To the City Planning Board of the City of Boston:

I transmit herewith a report on a Thoroughfare Plan for Boston. The work was started in January, 1927. The Plan is based on an exceptionally complete analysis of the present volume, origin and destination of traffic and a forecast of the probable increase and distribution of traffic over a long period of years. We were fortunate in securing the cooperation of the Mayor's Street Traffic Advisory Board and of the Division of Metropolitan Planning in the collection of traffic data and the making of this analysis and forecast.

The Plan and the various projects contained in it have seemed to flow naturally from the facts and conditions disclosed by the survey. The separate improvements have for the most part been suggested from time to time by individuals, organizations and officials. Their chief merit here is that they have been worked into a complete major highway system and each improvement has been designed to carry the burden that will be placed upon it as a part of that complete system as indicated by the traffic analysis.

In working out the Plan much thought has been given to the correlation of the highway system with all other phases of the physical development of the City, including parks, parkways, transit, rail and water terminals, airports, industries, business centers, residence areas and suburban communities. Moreover the improvements have been considered as a part of a larger system of metropolitan and state highways and parkways.

The attempt has been made to so locate and plan the new facilities that they will harmonize with the existing appropriate development. In the proposals for Boston Proper particular pains have been taken to avoid injury to the historic interest or charm of the crooked streets of Old Boston.

The work has progressed in close consultation with the members of the City Planning Board. Mr. Frederic H. Fay, chairman of the Board and consulting engineer with broad planning experience in many cities, has given invaluable assistance on the larger engineering problems involved. Mr. William Stanley Parker, the architect member of the Board up to February, 1929, and during the intervening months his successor, Mr. Edward H. Hoyt, have contributed freely from their broad architectural training. Mr. Sidney S. Conrad, merchant and first vice-president of

the Retail Trade Board, has made a splendid contribution in the preparation of the Financial Plan, Table XXIV, page 147.

Apart from the technical and financial features of the plan, the other members of the Board have brought to its consideration a constructive opinion based upon years of experience along other lines of civic endeavor. Mr. Ernest A. Johnson, secretary of the Building Trades Council of the City of Boston and lately appointed a member of the Board of Trustees of the Boston Elevated Railway, has been a member of the City Planning Board throughout the entire evolution of the Plan; Mr. John Jackson Walsh and Miss Mary A. Barr who were members while the Plan was in its preliminary stages; and Mrs. Francis E. Slattery who was appointed to membership in September, 1927. Miss Barr was again appointed to the Board in March, 1930.

Mr. Arthur C. Comey, who served as consultant to the City Planning Board in the preparation of the zoning plan and act, and who in that capacity made many of the fundamental city and regional studies upon which street planning should be based, prepared in 1925 a preliminary study for a major street plan for Boston. All of this preliminary work of Mr. Comey's has been utilized in the present study. Moreover, Mr. Comey has been retained in an advisory capacity during the preparation of a large part of the present report and various projects included in the Plan have originated with him. His contribution to the work has been of exceptional value.

Dr. Miller McClintock, director of the Erskine Bureau of Street Traffic Research and of the Mayor's Street Traffic Survey, has given advice on many problems.

Mr. Arthur A. Shurtleff, landscape architect and town planner, and consultant to the Boston Park Department, has been very helpful and certain projects originally worked out by him have been included in the Plan.

Acknowledgment is also due to Mr. Rupert S. Carven, City Auditor, to the Boston Traffic Commission, to the Street Commissioners and their staff, to the Transit Commission and to Mr. Ernest R. Springer, its chief engineer, to the Division of Metropolitan Planning and its staff, to Mr. Ellerton J. Brehaut, manager of the Civic Bureau of the Boston Chamber of Commerce, and to Mr. Fitz-Henry Smith, Jr., chairman of the Highway Committee of the Chamber.

The office and field work in connection with the Report has been performed by the staff of the City Planning Board under my general direction and under the immediate executive direction of Miss Elisabeth M. Herlihy, secretary of the City Planning Board. Mr. Edwin F. Delany, engineer of the Board up to June, 1928, and Mr. George H. McKay, his successor, have had charge of engineering work and

cost estimates. Mr. Robert B. Cheney, instructor at Massachusetts Institute of Technology, contributed largely to the engineering studies during the summer months of 1927 and 1928. Mr. F. Tyler Carlton assisted for nine months on the engineering work. Mr. Harold N. Weber made the statistical analyses for the traffic research. Mr. Henry L. Whitney, special investigator and city planner, has worked out many problems of design. Mr. Nord W. Davis and Mr. Waldemer C. Johnson, while students at the Harvard School of City Planning, aided during summer vacations in 1928 and 1929.

The drafting of the general thoroughfare map is the work of Mr. Alvah J. Webster. Mr. William H. Armstrong and Mr. Joseph V. Hardy have also contributed largely to the drafting of maps and diagrams. The secretarial work has been handled efficiently by Miss Mary T. Downey and Miss Gertrude M. Ryan.

Miss Elisabeth M. Herlihy, executive secretary of the Board, besides preparing the historical chapter on the development of the present street system, has, through her rare judgment and extended experience, contributed constantly to the development of the Plan.

Respectfully submitted,

ROBERT WHITTEN,
City Planning Consultant.

I. INTRODUCTION

This study has had for its purpose the preparation of a complete plan of main traffic arteries to take care not only of present but of probable future needs for a period of twenty-five or more years. It has not included a study of the purely local streets, either residence or business. It has been chiefly concerned with the main or trunk line system of traffic arteries.

This report does not include the subject of traffic regulation, which has to do with methods of directing traffic and getting the most out of existing street facilities. Before planning new facilities it is wise to know to what extent the efficiency of existing facilities can be improved. Fortunately this information is at hand in the work of the Mayor's Street Traffic Survey and the thoroughgoing report and recommendations of its director, Dr. Miller McClintock (published early in 1928). The data collected by this Survey have been of very great value in the preparation of the Thoroughfare Plan.

Supplementing the data collected by the Mayor's Street Traffic Survey and in co-operation with the Division of Metropolitan Planning, an unusually complete traffic analysis and forecast was prepared. This research included the determination of the origin and destination, volume and distribution of traffic and a forecast of future traffic growth. It furnishes what is probably the most complete factual basis for the design of highway improvements that has ever been secured for any great city.

Every project included in the Thoroughfare Plan has been carefully investigated to determine whether the resulting economic savings are at least equal to the cost. Certain improvements that would be advantageous and would seem to be a logical part of any complete thoroughfare plan, have not been included because they cannot be economically justified.

Every project has also been considered with reference to its relative urgency. It is clear that the financial capacity of the city is limited and that not all the improvments that are now needed can be undertaken at one time. Moreover, some of the projects will not be greatly needed for ten or more years and their construction at present could not be justified economically. An order of urgency and construction program extending over a period of years is therefore included as an essential part of the plan.

Boston during the past ten years particularly has had heavy expenditures for street improvements and bridges. These expenditures will have to be continued and increased during the next ten or fifteen years. This will be true whether or not

the projects included in the Thoroughfare Plan are carried out. The great advantage of having and following a long-term plan and program is that money will not be partially wasted on piecemeal and temporary expedients but will all go to build parts of a well-considered plan; and each project as carried out will add to the efficiency and value of the parts already constructed.

Motor vehicles covered a total distance of 1,800,000,000 miles within the Boston metropolitan district in the year 1927. The annual cost to the owners and operators was about $180,000,000. Bearing this huge annual total in mind, it is easy to demonstrate the economic justification for any reasonable program of street improvement that will actually result in a substantial reduction in the cost of operating a motor vehicle, either by speeding up the general traffic movement or by reducing traffic accidents.

Industrial and commercial growth throughout metropolitan Boston is dependent among other things on the development of a complete system of adequate and convenient traffic routes. The greatest potential advantage of a factory location in any great metropolitan center is due to the large home market within easy trucking distance. This is one of the chief factors in the continued growth of these great centers. Business growth and prosperity is in turn dependent on industrial growth. Convenient access between all parts of the Boston metropolitan area by truck and automobile is a prime essential for business and industrial prosperity.

II. SUMMARY OF PROJECTS

The Plan is based primarily on a recognition of the need for a modernization of the present highway system by the development of a limited mileage of express roads and parkways of generous width and permitting a continuous flow of traffic. The widening of existing streets and the creation of traffic streets of the ordinary type has not been neglected but these improvements unless supplemented by those of the express road type cannot prevent a further increase in congestion, to say nothing of providing an effective relief for existing congestion.

Just as some thirty-five years ago street surface congestion in Central Boston forced a start in the building of rapid transit subways to supplement the street surface car lines, so now the congestion produced by the automobile is bound to force the supplementing of the ordinary street system by a system of express roads. In a few years a Boston without its limited but well articulated system of express roads will be as unthinkable as a Boston without its rapid transit subways and tunnels. Boston was a pioneer in the development of the rapid transit subway: it seems destined to have a similar role in the development of the express road.

The Thoroughfare Plan includes ten major projects as follows:

1. **East Boston Tunnel or Bridge.** Twin two-lane tubes or four-lane bridge from proposed North Shore Radial, East Boston, to proposed Central Artery near Hanover Street.

2. **Central Artery.** A new two-level street from Nashua Street to the northern terminus of proposed Blue Hills Radial at Kneeland and Albany Streets.

3. **Blue Hills Radial.** Express road from proposed Central Artery at Kneeland and Albany Streets to Blue Hill Avenue at Seaver Street.

4. **North Shore Radial.** Express road from proposed State highway in Revere along Boston and Maine Railroad and Bremen Street to the proposed East Boston Tunnel portal.

5. **Roxbury Crosstown.** Express road from Old Colony Parkway north of Savin Hill to Bay State Road at Ashby Street.

6. **Charles River Parkway.** Express road and parkway from Longfellow Bridge along southerly side of Charles River to Cottage Farm Bridge.

7. **North Beacon Street, Brighton.** Express road from Union Square westerly to the Charles River.

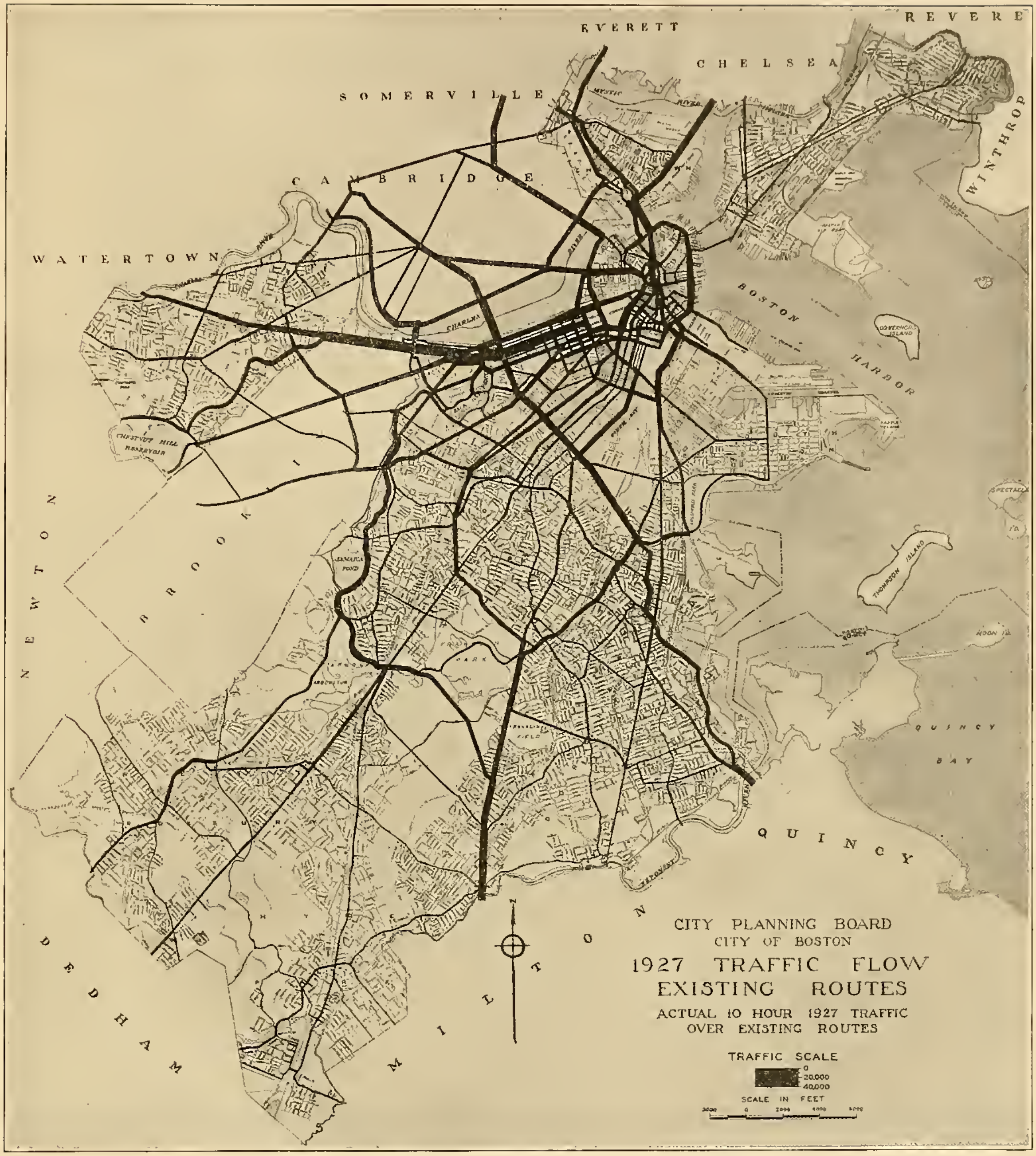


FIGURE 1.—1927 TRAFFIC FLOW OVER EXISTING ROUTES.

The black lines along the major traffic routes are drawn to show the actual volume and distribution of traffic in 1927. The black lines are drawn to scale to show by their width the number of vehicles. At the scale of this reduction a black line one-twentieth of an inch in width indicates a traffic volume of 20,000 vehicles during a ten-hour period. Note the congestion at Governor Square and in Central Boston. Note the large volume of traffic over the Charles River Dam with no adequate outlet toward Central Boston. Note, also, the apparent lack of a good traffic route into the heart of the city from Blue Hill Avenue.

8. **Canterbury and Clarendon Hills Parkways.** Express road and parkway from southern terminus of proposed Blue Hills Radial at Seaver Street to proposed Neponset River Parkway, with a branch connection from Clarendon Hills to West Roxbury Parkway and Washington Street.

9. **Neponset River Parkway.** Express road and parkway along Neponset River from Readville to Quincy Shore Drive, near Neponset Bridge, with a branch to Southern Artery via Adams Street.

10. **B & A Highway.** Elevated roadway over Boston & Albany tracks from Commonwealth Avenue at Cottage Farm Bridge to Arlington Square.

In addition to these ten major projects the Plan includes fifty-six other projects, some of the more urgent or important of these being:

The widening of Old Colony Avenue and Dorchester Avenue to serve as an express road connection from the Old Colony Parkway to the proposed Central Artery;

The widening of Chardon Street to connect the proposed Central Artery with the Longfellow Bridge, via Cambridge Street;

The widening of Washington Street, from Adams Square to Haymarket Square;

The separation of grades at Governor Square and at Commonwealth and Massachusetts Avenues;

The creation of a traffic circle and underpass at the Longfellow Bridge;

The creation of a traffic circle and underpass at Charles River Dam, and the widening of Charles Street, from Charles River Dam to the Longfellow Bridge;

The widening of Porter Street, East Boston, to connect the Boston Airport, the proposed East Boston Tunnel, the proposed North Shore Radial and Central Square;

The widening of Rutherford Avenue;

The cutting of a by-pass road around City Square, Charlestown, connecting Prison Point Bridge with Chelsea Street;

The widening of Castle, Motte and Way Streets as an express road connection between the proposed Blue Hills Radial and the proposed B & A Highway;

The widening of Arlington Street from Stuart Street to Arlington Square;

The relocation of South Ferry to South Boston;

The widening of Centre Street between the Arborway and South Street;

The widening of Market Street and Chestnut Hill Avenue in Brighton as part of a metropolitan traffic circuit;

The widening of North Harvard Street;

The separation of grades in the Arborway at Forest Hills and improvement of the junction of Hyde Park Avenue and Washington Street.

The present thoroughfare layout is defective in its radial access to Central Boston both from the northeast and from the south. This is shown clearly by a careful timing of trips to and from Central Boston made by the Mayor's Street Traffic Survey. In thirty minutes one can travel about two times as far to the west via Beacon Street or to the northwest via the Northern Artery, as toward Chelsea, East Boston and the North Shore; and about one and three-fourths times as far as toward Roxbury, Dorchester and the south.

A central feature of the Thoroughfare Plan is a great north-south express road extending from the northerly city line bordering Revere to the southerly city line at Readville, a distance of 13.7 miles. It will connect the State highway system serving Revere, Lynn, Salem, Beverly and other North Shore cities and towns on the north with the State highway system serving Stoughton, Taunton, Fall River, New Bedford and neighboring towns on the south. It will also connect with a proposed new highway to Providence. This route is made up of all or parts of six major projects:

The North Shore Radial
The East Boston Tunnel or Bridge
The Central Artery
The Blue Hills Radial
The Canterbury Parkway
The Neponset River Parkway

This north-south express road will greatly facilitate access to Central Boston both from the northeast and from the south, and will also furnish a quick and direct route from Chelsea and East Boston on the north to Roxbury, Dorchester, Hyde Park and Milton on the south. Over this whole course of over thirteen miles an automobile will be able to maintain an average speed of about thirty miles an hour. This is about two and one-half times the present average speed. All of the outlying areas, both north and south, will be brought appreciably nearer in point of travel time to Boston Proper. This will tend both to build up the outlying areas and to increase business in the central areas. It will also mean an enormous economic saving to the motor vehicle users and a material reduction in the cost of transporting goods and of carrying on business and industrial operations.

Figure 2.—Estimated Distribution of 1927 Traffic Using Both Existing and Proposed Routes.

Note the clearing up of congestion shown in Figure 1 at Governor Square and in Central Boston. Note the importance of the Central Artery with its upper level roadway serving as a great interceptor to collect traffic and bypass it around the existing centers of congestion. Note, also, the importance of the Blue Hills Radial serving as a southerly gateway to the Central Artery.

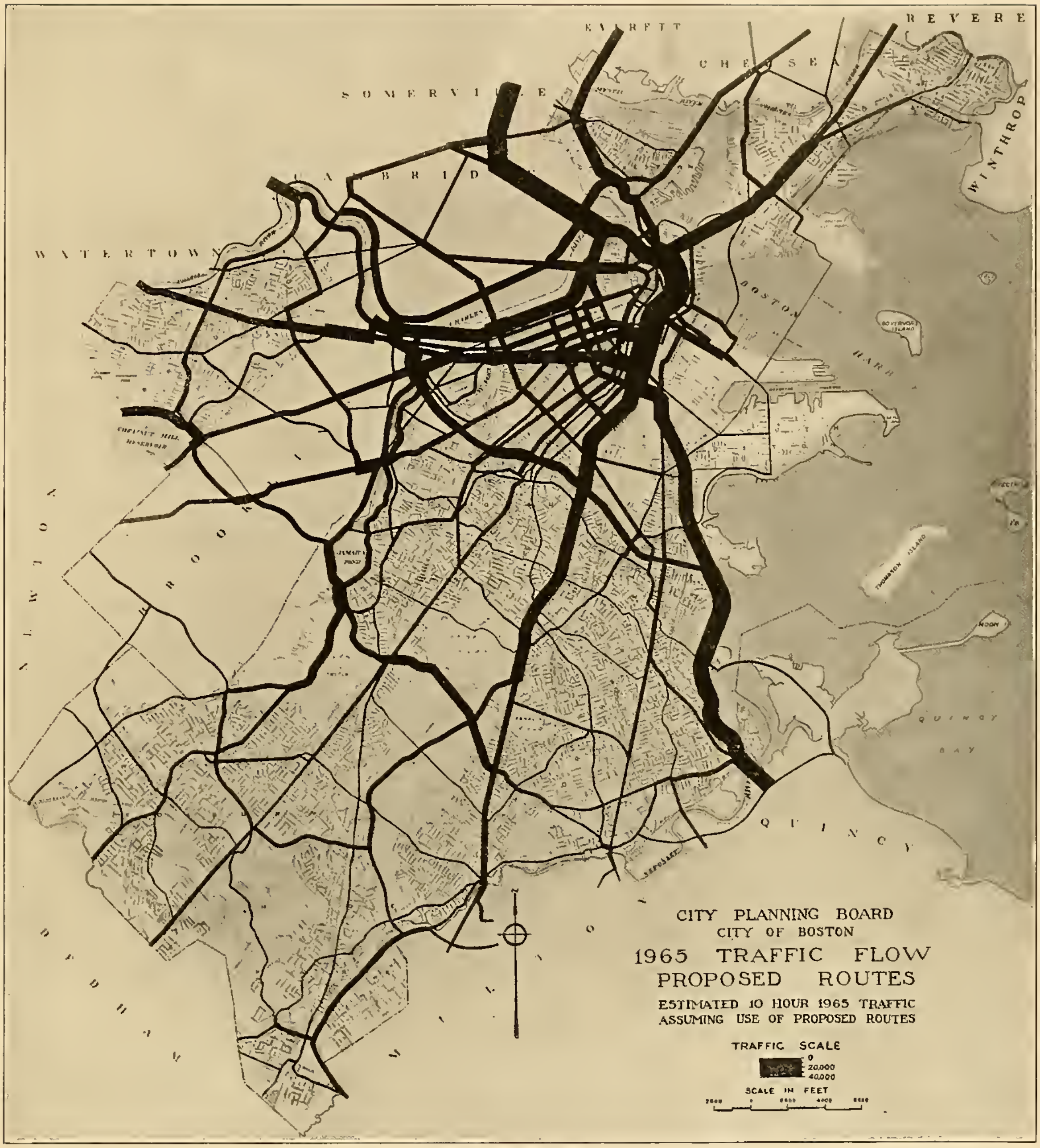


FIGURE 3.—ESTIMATED DISTRIBUTION OF 1965 TRAFFIC USING BOTH EXISTING AND PROPOSED ROUTES.

The 1965 traffic volume is from one and one-half to slightly more than two times the actual traffic in 1927. The express roads included in the plan will be adequate to carry this great increase in traffic. It is clear that without these proposed facilities there will be a complete breakdown in the city's highway system.

estimated requirement for that purpose in 1930, this ten-year construction program can be financed without an increase in the tax rate and without affecting a normal expansion in expenditures for other municipal purposes.

The people of metropolitan Boston are spending some $180,000,000 a year for motor vehicle transport. They are spending this huge amount annually for the operation, maintenance, upkeep and replacement of automobiles and trucks. The return that they receive for this investment and expenditure depends on the adequacy of the street system. The slowing down of vehicular movement owing to congestion and delays that could be obviated by a modernized highway system, actually decreases the utility and efficiency of the motor vehicles using the streets of Boston by from 10 to 20 per cent. Even a 10 per cent average increase in efficiency due to the improvements proposed by the Thoroughfare Plan will be worth $18,000,000 annually to motor vehicle users. The proposed express roads and other projects are costly but they are not nearly as costly as the present congestion and delay.

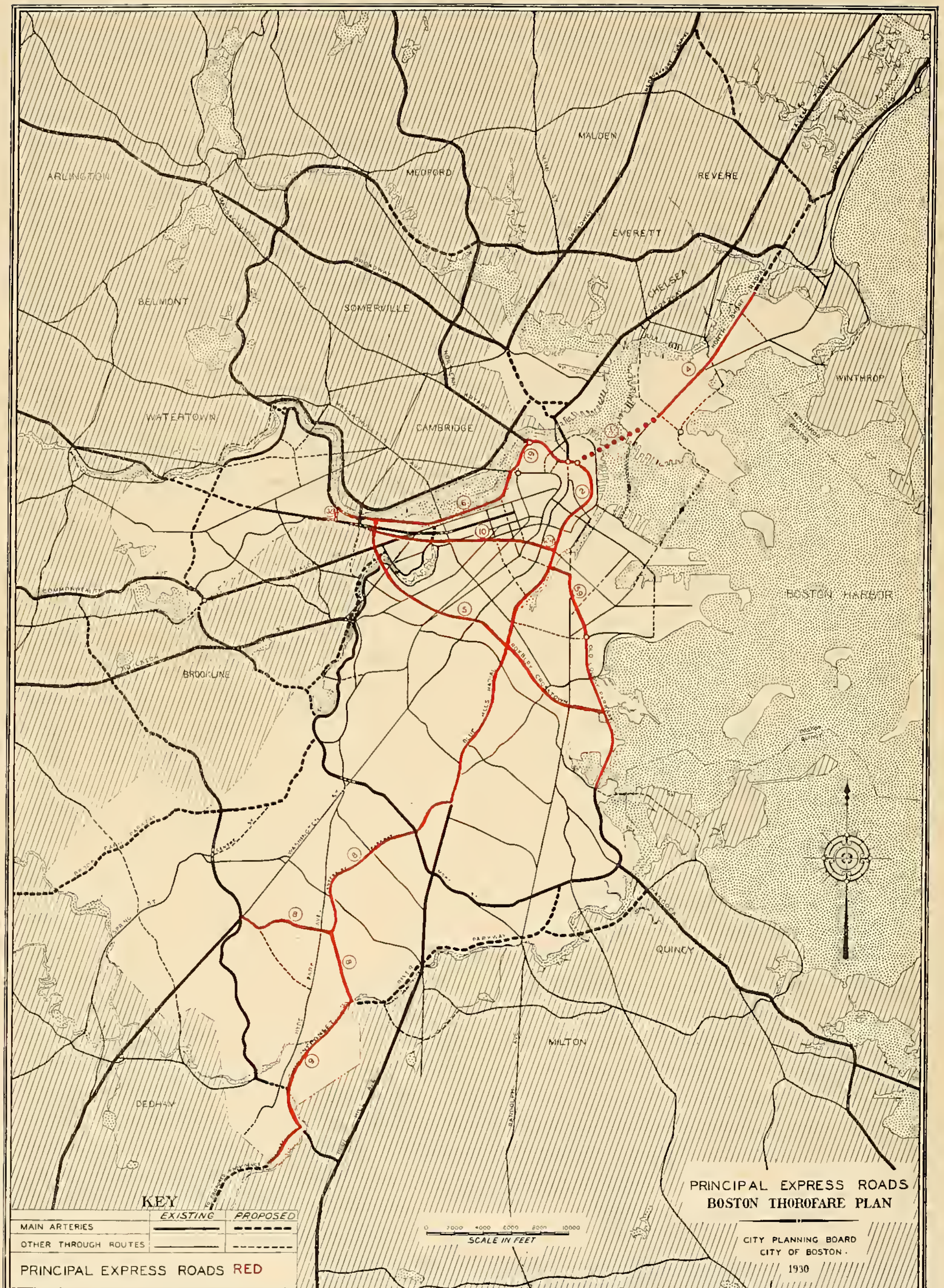


FIGURE 4.—PRINCIPAL EXPRESS ROADS.

III. GENERAL CONSIDERATIONS

1. Express Roads

The principle underlying the design of main trunk highways and parkways in the proposed Thoroughfare Plan is that they should provide, in so far as it is economically feasible, for a free and continuous movement of traffic. This requires that roadway levels should be separated at the more important intersections. On the proposed Central Artery there will be a central viaduct carrying over all cross streets. On the proposed parkways provision is made for overpasses or underpasses at all important intersections. For the Blue Hills Radial, the Roxbury Crosstown and other major routes a type of broad express road is recommended. For the locations selected this type of express road is believed to be the most economical and efficient means of providing the required traffic capacity, due consideration being given to the importance of speed, safety and comfort of travel.

The problem presented is both that of providing relief for existing congestion and of providing traffic capacity for approximately double the number of vehicles that now use the city's streets. One way to meet this problem would be to widen a large number of existing streets from their present widths of 50 or 60 feet to 80 or 100 feet. Such wholesale widenings would be enormously expensive and would not remove the chief source of congestion and delay which results from the crossings at grade. Under the conditions disclosed as the result of a careful analysis of the Boston traffic problem the construction of a few broad express roads seemed to be the only logical and practical solution.

The typical section of the express road is 140 feet in width. It has two 10-foot sidewalks, two 40-foot roadways and a central planting strip 40 feet in width. The two 40-foot roadways give six 10-foot traffic lanes for free moving traffic (that is, width for three vehicles moving abreast on each roadway) and a 10-foot space adjacent to each sidewalk for stopping and for access to abutting property. Each traffic lane should be marked by a white line on the pavement. (See Fig. 5.)

The 40-foot central planting strip is just as essential as the roadways themselves. It permits the traffic from minor cross streets to weave across without stopping the through traffic of the express road. An automobile coming from a side street turns to the right, weaves diagonally across the lanes of moving vehicles, turns left in a half-circle across the planting strip, enters the other roadway, weaves across the lanes of moving traffic and turns out to the right.

The vehicle coming in from the side street will have to weave diagonally across three lanes of fast moving vehicles. For this purpose a roadway length of at least 150 feet between point of entering and leaving is desirable. This is based on an allowance of 50 feet per lane of moving vehicles crossed. Where traffic is heavy this allowance should be increased to 80 feet per lane, or a total of 240 feet. It is believed that weaving is practical until the density on the through lanes exceeds 1,200 vehicles per hour. At 1,200 per hour there will be a vehicle every three seconds and if the vehicles are moving at a speed of 30 miles an hour they will average 117 feet apart (allowing 15 feet as the length of the average automobile). Under these conditions it would be feasible for an automobile moving at a speed of twenty miles an hour to weave diagonally across this lane and get out of the way with a fair margin of safety. It would have about six seconds to do this as the approaching 30-mile-per-hour automobile would gain on it at the rate of but 14.6 feet per second. Six seconds is more than double the time that it should take the average automobile to weave diagonnally across a single traffic lane. Twelve hundred vehicles per lane per hour for each of the three one-direction lanes would not be a normal rush hour density until the total 24-hour traffic in both directions amounts to at least 60,000. This is greater even than the estimated 1965 traffic on any of the express road sections on which it is proposed to apply this method of cross traffic weaving. It is expected that under normal rush hour conditions in 1936 the typical express road section

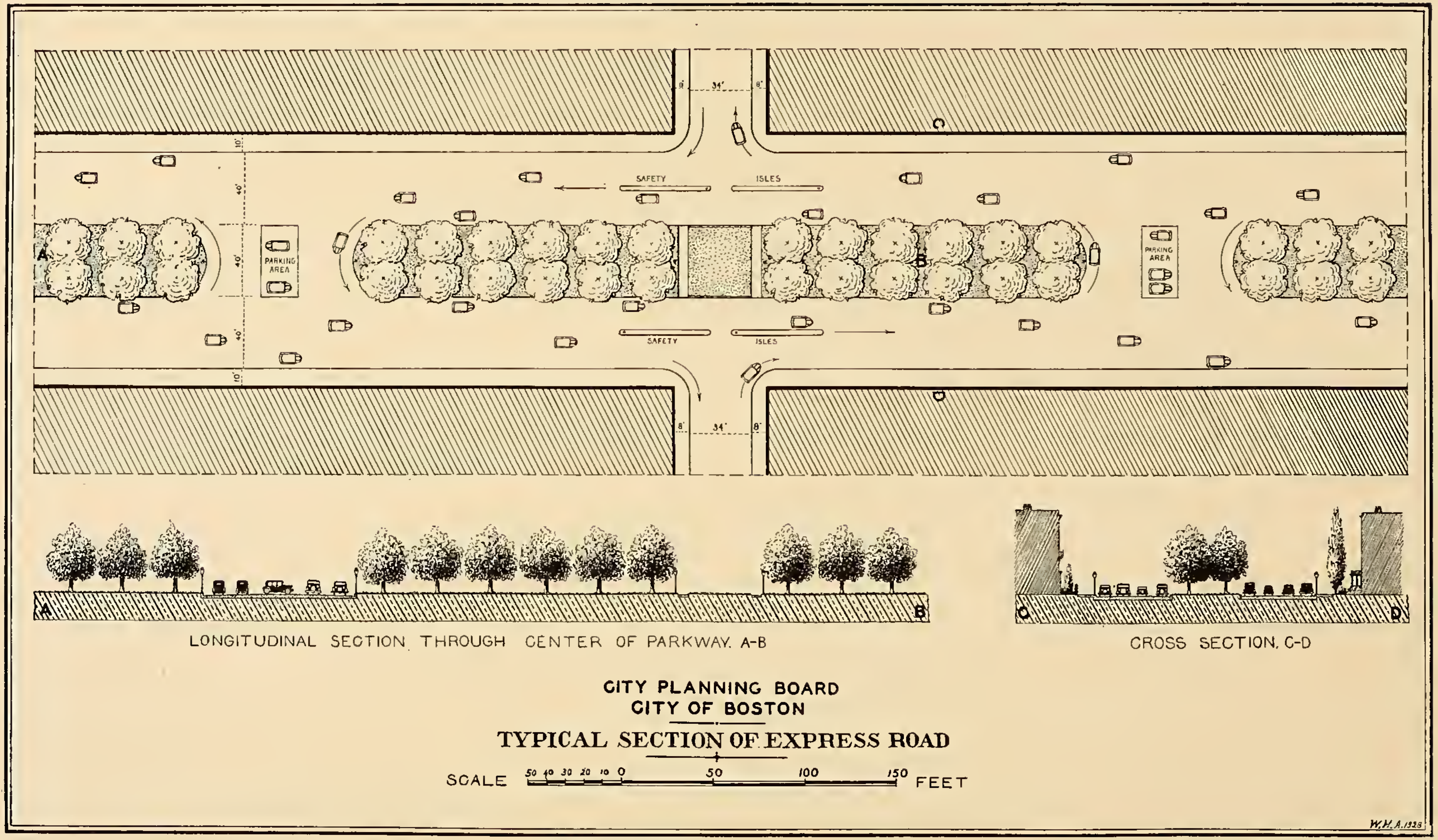


FIGURE 5

The typical express road section 140 feet in width has two 40-foot one-direction roadways and a 40-foot central reserve strip. The traffic of a minor cross street turns right with express road traffic and then left around the end of the central reserve strip.

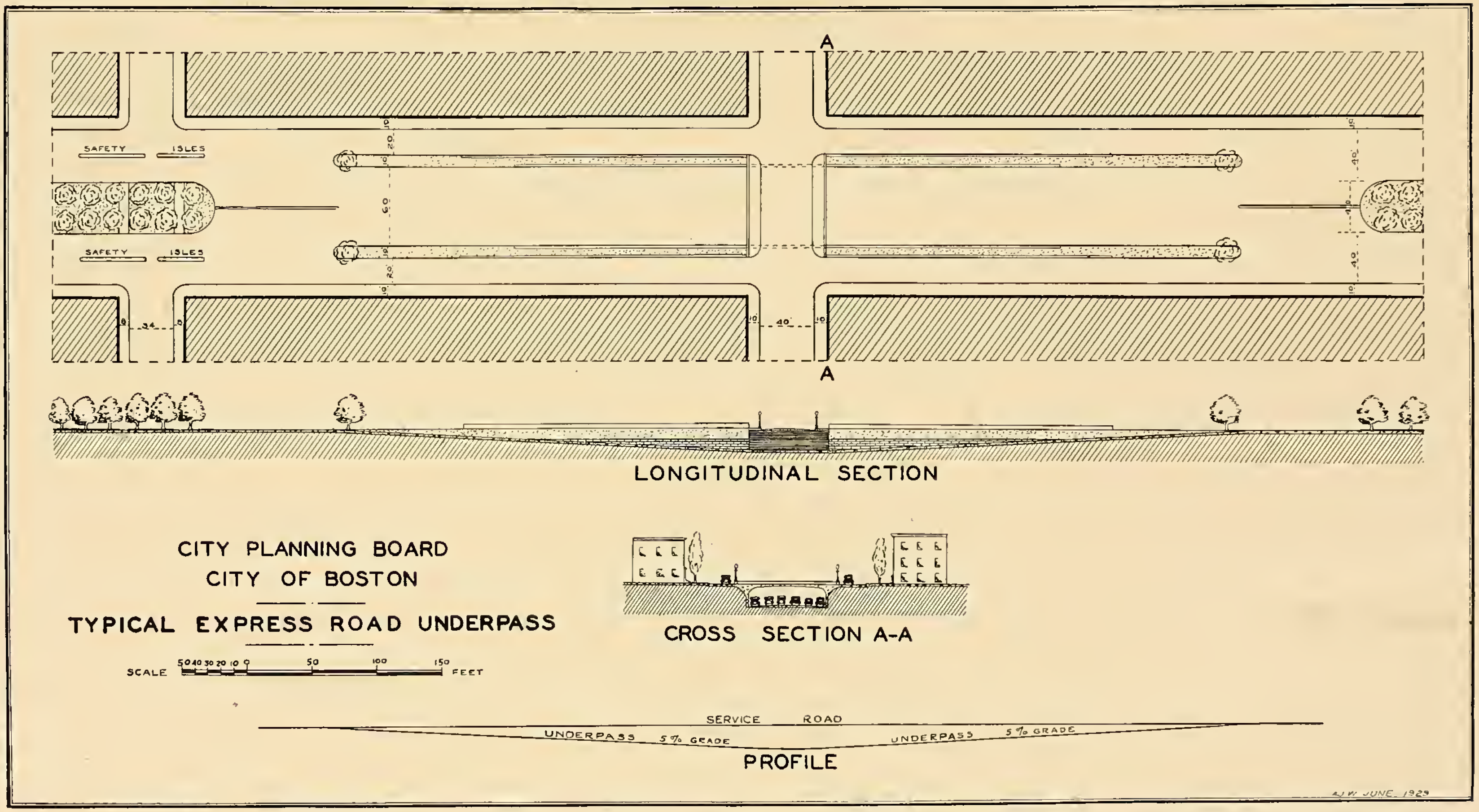


FIGURE 6

The typical express road underpass has a 60-foot central roadway and two 20-foot side roadways. There is a 10-foot strip for retaining wall and earth slope between the central roadway and the side roadways. The approach grades on the underpass are 5 per cent. The cross street is carried on a bridge over the central roadway.

will be carrying about 600 vehicles per hour per lane. This will increase the time interval between vehicles from 3 seconds to 6 seconds and the distance between vehicles from 117 feet to 249 feet. This under the same conditions as above will increase the available time for weaving from 6 seconds to 15 seconds and thus affords quadruple the margin of safety for the weaving automobile. For heavy trucks moving at a speed under 10 miles per hour, through traffic would doubtless have to slow down; and if the number of such trucks at any particular cross street should so increase as seriously to slow down the through movement, an underpass or overpass should be constructed to separate grades. The 140-foot width of the express road permits such a separation of grades at any time at minimum expense.

A pedestrian crossing the express road at grade during the periods of maximum travel will have more difficulty than the motor vehicle. The safety zone in the middle of each 40-foot roadway will help the pedestrian as he will have to cross but two lanes of traffic at one time, a distance of 18 feet, and he will have to watch in but one direction for approaching vehicles. Walking at 3 miles an hour it will take 4.3 seconds to cross the 18-foot roadway. As indicated above with a traffic density of 1,200 vehicles per lane per hour the interval between vehicles is but 3 seconds, so that unless the approaching vehicle could be required to slow down the pedestrian would have little chance. With the expected normal rush hour density of but 600 vehicles per hour the interval between vehicles would be 6 seconds and the pedestrian could cross with a fair margin of safety. However where any considerable density of pedestrian traffic must be provided for a pedestrian subway should be constructed. Such subways are recommended in a number of locations. Where pedestrian subways are constructed crossing on the surface should be prohibited.

On the express road grades are separated at the more important cross streets. The through traffic of the express road is carried under or over the cross street. Side ramps or service roads permit interchange traffic between the express road and the cross streets and also give access to abutting property. The typical grade separation cross section consists of two 10-foot sidewalks, two 20-foot service roads, and a 60-foot central roadway with two 10-foot strips on either side for earth slope and retaining wall. The earth slopes will be attractively planted. For the above cross section an aggregate width of 140 feet is required. (See Fig. 6.)

The traffic capacity of the 140-foot express road will be four to six times that of the ordinary traffic street. It can carry 60,000 vehicles a day at an average speed of thirty miles an hour. Capacity is not merely a question of the number of vehicles that can be crowded through but is even more a question of safety, comfort and speed with which vehicles may traverse the road. Speed will be doubled and accidents reduced to a minimum. A 50 per cent reduction in time of travel from one side of the city to the other means an enormous saving in trucking cost and a great convenience and saving to all who use the automobile for trips about town.

These great tree-lined boulevards will combine beauty and utility in a most exceptional manner. The central tree or planting strip will separate and regulate traffic and permit the traffic of minor streets to weave across without interrupting the continuous movement of through traffic. The extra width taken by the central strip can be used where grade separations are needed to provide the extra space required for side ramps and for attractively planted earth slopes at the approaches to the underpass or overpass.

Great care should be taken in the engineering and architectural design of bridges in connection with grade separations. Advantage can well be taken of the contribution made to this subject by the Westchester County (N. Y.) Park Board in the design of its parkway overpasses. They have shown that economy, efficiency and beauty can be happily combined in these bridge structures.

For an express road even a 140-foot width is far from ideal. It would be desirable to have an additional 60 feet to provide for two service drives for local traffic. This would have the very great advantage in residence districts of keeping the dwellings farther away from the fumes and

noise created by the heavy volume of through traffic. The ideal express road should, therefore, be 200 feet in width, which is exactly the width of the Arborway between Jamaica Pond and Centre Street and of Commonwealth Avenue between Arlington Street and Governor Square. If it were a question of laying out a new city it would be shortsighted and uneconomical to lay out these express roads at a width much less than

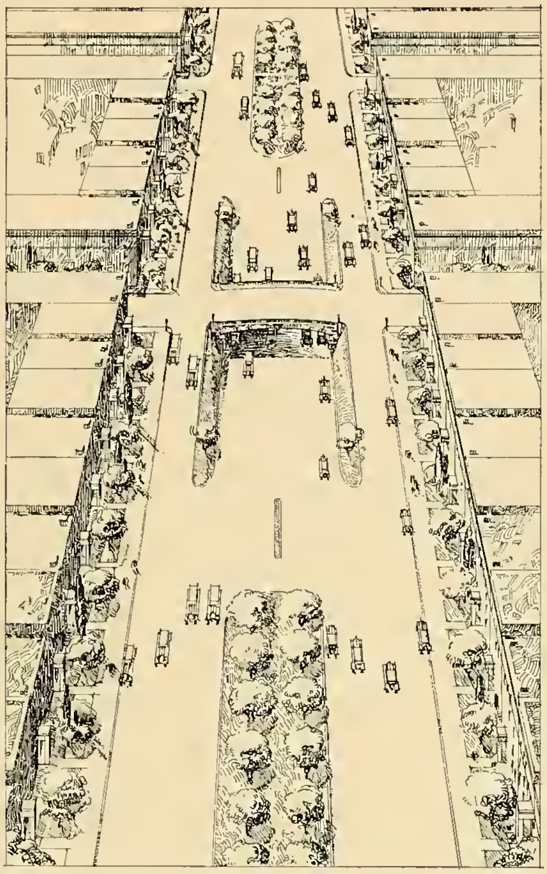


FIGURE 7.—VIEW OF EXPRESS ROAD UNDERPASS.

200 feet. Detroit and Chicago are laying out many miles of 200 and 204 foot express roads in their as yet unbuilt areas.

The private automobile has long since ceased to be primarily a "pleasure car." The number of trips made on city streets just for the pleasure of driving is negligible. Automobiles are used in order to get somewhere; that is, for purposes of transportation. During the working day the great majority of these trips may be properly classified as business trips. The express road, far from being a mere speedway for "pleasure cars," is the only effective means of preventing a serious breakdown in the city's transportation system, with its resulting injury to business and industrial prosperity.

2. Parkways

Along the Charles River and in the suburban southern portion of the city there are opportunities for a more informal landscape treatment of the proposed through routes on more generous takings of varying width, including such natural topographic features along the route as river banks and rocky ledges. These parkways will fit in with and round out the present metropolitan parkway system, as affecting Boston, and will enhance values in their respective districts, besides affording a safer means of rapid automobile travel. They should therefore be financed and built under the same auspices as other metropolitan parkways.

Parkways can be made a very important part of a complete highway plan. Technically a parkway is a road through a strip of park land. The owner of land abutting a park has no legal right to drive across the park margin to gain access to the park roadway. A fence or hedge may be erected along a park barring all access from abutting land.

This makes it possible to prevent the parkway from assuming the character of an ordinary city street with the local traffic and stopping at the curb incident to intensive apartment house or business use. If developers of land adjoining a parkway desire to front houses on it they should be required to provide their own service road for access and not be permitted to injure the efficiency of the parkway for through movement.

Moreover the width of the park strip facilitates the provision of double roadways and also the separation of grades at intersections. If (as is frequently the case) the park strip follows a stream valley, this also facilitates the carrying of cross streets over the park road.

The parkway is the ideal method of carrying heavy traffic through a residence district. The noise and fumes can be kept further away from

the homes and the attractiveness of the broad open park strip is some compensation for the nuisance features due to heavy traffic.

The proposed parkway along the Charles River, which essentially parallels existing through routes, should be restricted to passenger vehicles. On the other hand, the proposed Canterbury, Clarendon Hills, Neponset River and Brook Farm parkways will traverse regions not otherwise supplied with broad thoroughfares and will replace portions of existing traffic streets. They are designed to divert both commercial and passenger vehicles from congested, dangerous business streets. Their broad landscape treatment will offset the effect of heavy traffic on surrounding property by providing park-like frontages. At certain points where additional local parks are badly needed for the future population these parkways may be so developed as to supply this service also.

3. Pedestrian Protection

Studies made by the Mayor's Street Traffic Survey show that 69 per cent of the personal injury traffic accidents involve accidents to pedestrians. The survey estimates the economic cost of non-fatal accidents at $250 each and of fatal accidents at $4,000 each. This for the 131 fatal and 6,281 non-fatal accidents in 1926 makes a yearly economic loss of $2,094,250.

In the design of all street projects care has been taken to lessen traffic dangers for the pedestrian. A considerable measure of relief will be afforded by the Central Artery with its upper level roadway, thus taking a large amount of traffic from the surface of the street. The various over and under crossings planned for the Blue Hills Radial and the Roxbury Cross-town will afford similar relief to the pedestrian.

Courtesy of the Westchester County Park Commission.

FIGURE 8.—BRONX RIVER PARKWAY UNDERPASS, BRONXVILLE, N. Y.

In the Westchester County parkway system attractive bridges carry all cross-traffic streets over the parkways.

Isles of safety are also planned for these two major routes so that in general the pedestrian will not have to cross at grade more than two lanes of one-direction traffic without an intervening isle of safety. (See Fig. 5.)

There are many places throughout the city where isles of safety could be created without unduly reducing the roadway space for moving traffic and with great benefit to the pedestrian. One of these is Cambridge Street, where the construction of a number of safety isles has recently been authorized.

Several pedestrian overpasses are proposed for the Charles River Parkway and for Charles Street, opposite the Charlesbank Playground.

To safeguard children going to and from school a pedestrian overpass or underpass is recommended on the proposed Blue Hills Radial.

Various grade separations planned for existing and proposed parkways and boulevards will increase safety both for the pedestrian and for the motor vehicle user.

4. Official Adoption of a Thoroughfare Plan

Legislation should be secured to permit the official adoption by the City with the approval of the Mayor of an official Thoroughfare Plan. There should be no attempt in this to bind the action of future administrations but merely to insure that a definite procedure be required to effect changes in the Plan when once it is officially adopted. New projects could by this procedure be added to the Plan and old projects modified or abandoned whenever required by changing conditions.

This legislation should also provide for safeguarding the integrity of the Plan by preventing by some equitable means the blocking of projects contained in the Plan by the erection of costly buildings within the lines of streets laid down

Courtesy of the Westchester County Park Commission.

FIGURE 9.—BRONX RIVER PARKWAY UNDERPASS, SCARSDALE, N. Y.

thereon. This can be done in some cases by the establishment of a building line easement and the payment of damages caused thereby. The legislation proposed by the Massachusetts Federation of Planning Boards and entitled "An Act further protecting locations reserved for public ways" (House Document 539 of 1930) would permit the laying out of any streets included in the Thoroughfare Plan and the taking of an easement that would protect the City from having to pay damages for buildings thereafter erected. This legislation, which has been drafted by Philip Nichols, Esq., follows in principle the "Standard City Planning Enabling Act" recommended for adoption by the United States Department of Commerce. This method could be appropriately applied to various cases of street widening and to the laying out of new routes in the less developed areas. It is recommended that the City support the adoption of this legislation by the General Court.

Supplementing these methods the City should use a fund of, say, $500,000 a year for a period of years to buy in advance of imminent building operations, land that will be needed for future projects. This is particularly important in connection with the land that will be needed for the proposed parkways. It is now largely vacant but in all probability will not long remain so.

Knowing that within the next ten years a particular lot will be needed for an express road or parkway it is surely the height of inefficiency to stand by while an expensive building is being erected upon it. If ten years ago the present Thoroughfare Plan had been adopted and new buildings prevented that will now have to be purchased, the cost of carrying through the construction program here recommended would be materially less. It is clear also that unless prompt means are taken to prevent new buildings in the lines of the projects here proposed the actual cost will be materially increased over the estimates here made.

The adoption of an official Thoroughfare Plan, together with a construction program backed up by a financial program, is the only means of effectively tackling the city traffic problem in an economical and businesslike manner.

5. Fundamental Assumptions

The system of traffic streets should be made adequate to handle all traffic with safety, speed and comfort. The prosperity of the city is dependent on the utmost freedom of circulation for goods and persons.

Street facilities can and should be designed for the traffic that will wish to use them. It is wrong to start with the assumption that city growth and street traffic can or should be restricted to approximately present street capacities.

A street system should not be designed to promote either centralization or decentralization. It should be designed to promote safety, comfort and speed of movement between all parts of the community. This will result in the best and most economical and orderly organization of the social and business life of the community. It will in general promote centralization where centralization is justified and decentralization where that is consistent with the best organization for the community as a whole.

A comprehensive thoroughfare plan is just as essential to the prosperity of the local business centers as it is to that of the main center. It is just as important to the local center that there should be adequate traffic ways between it and the main center and between it and the other subcenters as it is to the main center that it should be connected with all parts of the community.

It is sometimes said that it is useless to increase street capacities in central areas as any additional capacity provided will be immediately taxed to the saturation point. This assumption may be valid in certain situations as applied to local business streets but has no validity whatever as applied to any major traffic artery — to any street that is an essential part of a comprehensive thoroughfare plan. A serious slowing down of the traffic movement in any part of the main arterial system affects injuriously the whole community.

There are undoubtedly a considerable number of persons who now use the automobile for trips that could be made just as conveniently and more economically by railroad or rapid transit line. A further slowing up of the traffic movement would stop some of these ill-advised trips.

But it would also increase the inconvenience and cost of all the necessary trips. It would injure business and tend to increase the cost of living for all the people of the city. There is no way to discourage needless trips without at the same time inconveniencing vehicle movements that are essential to the welfare of the community.

The automobile cannot serve the function now performed by rapid transit subways and elevated roads. These facilities must be relied upon for mass transportation along the most concentrated routes of passenger travel. They, together with the surface cars and buses, must continue to be the main reliance for the daily workward and homeward travel to and from Boston Proper. The rapid transit system should be extended so as to reduce the rush hour street traffic. There should be rapid transit routes and facilities to draw all trips that normally can more quickly, conveniently and economically be made in that way; and there should be express roads and parkways to accommodate all trips that can normally be made best by the use of the automobile.

The city's street system should be adapted to the requirements of a motor age. The art of street design and construction has lagged far behind the art of vehicle design and construction. As a result the citizens and business men of metropolitan Boston are being denied the full advantage of one of the most marvelous developments of the age, the motor vehicle.

The automobile stands ready to help in a better distribution of metropolitan population. It has already done wonders in taking population into undeveloped areas remote from the transit lines. It could do more if the art of road design and building had kept pace with improvements in automobile design.

Express roads for trunk line through traffic should be provided where economically feasible. Roadway grades should be separated at important intersections.

No certain progress can be made toward solving the traffic problem without a comprehensive plan of street facilities that will take into consideration future as well as present needs.

The thoroughfare plan is one part of a comprehensive city and regional plan. It should be studied in relation to zoning, parks, public buildings, rapid transit and all other factors that must be considered in comprehensive planning.

IV. TRAFFIC ANALYSIS AND FORECAST

1. General

Thoroughfares should, of course, be designed for the traffic they are to carry. In order to justify a particular project it is necessary to know how much traffic will use it and from what existing routes this traffic will be diverted. The only way that this can be determined is to determine the number of vehicles that would normally be convenienced by the new route. For this purpose it is necessary to know the average daily traffic movement between the various Boston centers and between each of these centers and each community in the metropolitan district. It is also necessary to have a reliable estimate of the probable increase in traffic over a considerable period of years. These are difficult problems and worthwhile results can only be obtained by careful and painstaking research.

Through the cooperation of the Mayor's Street Traffic Survey, the Boston Planning Board and the Division of Metropolitan Planning an unusually complete and detailed traffic analysis and forecast has been prepared. This research has had for its purpose the determination of the origin and destination, volume and distribution of traffic and a forecast of future traffic growth, to serve as a practical guide in thoroughfare planning. The detailed methods and results of this survey are contained in a report to the Division of Metropolitan Planning, prepared under the direction of the author. The conclusions from this report, supplemented by independent investigations of special interest in connection with the Boston Thoroughfare Plan, are outlined below.

For the purpose of determining the number of vehicles passing through each pair of communities or centers, Boston was divided into 12 traffic districts. These 12 districts, together with the 38 cities and towns in the metropolitan district outside of Boston, made a total of 50 traffic districts. In addition, each of the 19 radial highways entering the metropolitan district was considered a gateway traffic district for the purposes of the traffic analysis (see Fig. 11).

As a basis for estimating the number of vehicles passing between each pair of traffic districts, drivers were questioned at 178 points in the metropolitan district. One hundred and five of these origin and destination checks were made within the City of Boston by the Boston Police Department. A total of 188,000 drivers were questioned and 101,000 of the drivers questioned were within the City of Boston.

As an example of the information supplied by these counts, the origin and destination count on the Harvard Bridge (see origin and destination count 83, page 230) shows that out of a total of 17,510 vehicles 9,058 or 51.6 per cent are going to or from points in Cambridge. The count also shows that on the Boston side there are 9,660 vehicles or 55 per cent of those crossing the bridge that have either an origin or a destination within Boston Proper. However, only 4,981 of the vehicles passing over the Harvard Bridge have both their origin and their destination either in Cambridge or in Boston Proper. The total daily 10-hour traffic between Cambridge and Boston Proper is 14,689 vehicles (see Table 2). Only about one third of this traffic uses the Harvard Bridge.

In addition to the origin and destination checks, traffic volume counts were made at 518 points within the City of Boston by the Mayor's Street Traffic Survey, in cooperation with the Boston Planning Board. These counts grouped at intersections and squares are charted on pages 179–193.

Volume counts were also made at 255 points outside of Boston under the supervision of the Division of Metropolitan Planning. All of these counts were used in preparing traffic flow maps for the metropolitan district (Fig. 12), for Boston (Fig. 1), and for Boston Proper (Fig. 19).

Most of the traffic counts were made for 6, 8 or 10 hours. Based on the ratio of 6 or 8 hour traffic to 10-hour traffic in similar locations, all counts for a period of less than 10 hours were increased to a 10-hour basis. For many purposes it is desirable to increase the 10-hour count to cover a 24-hour period. The inner

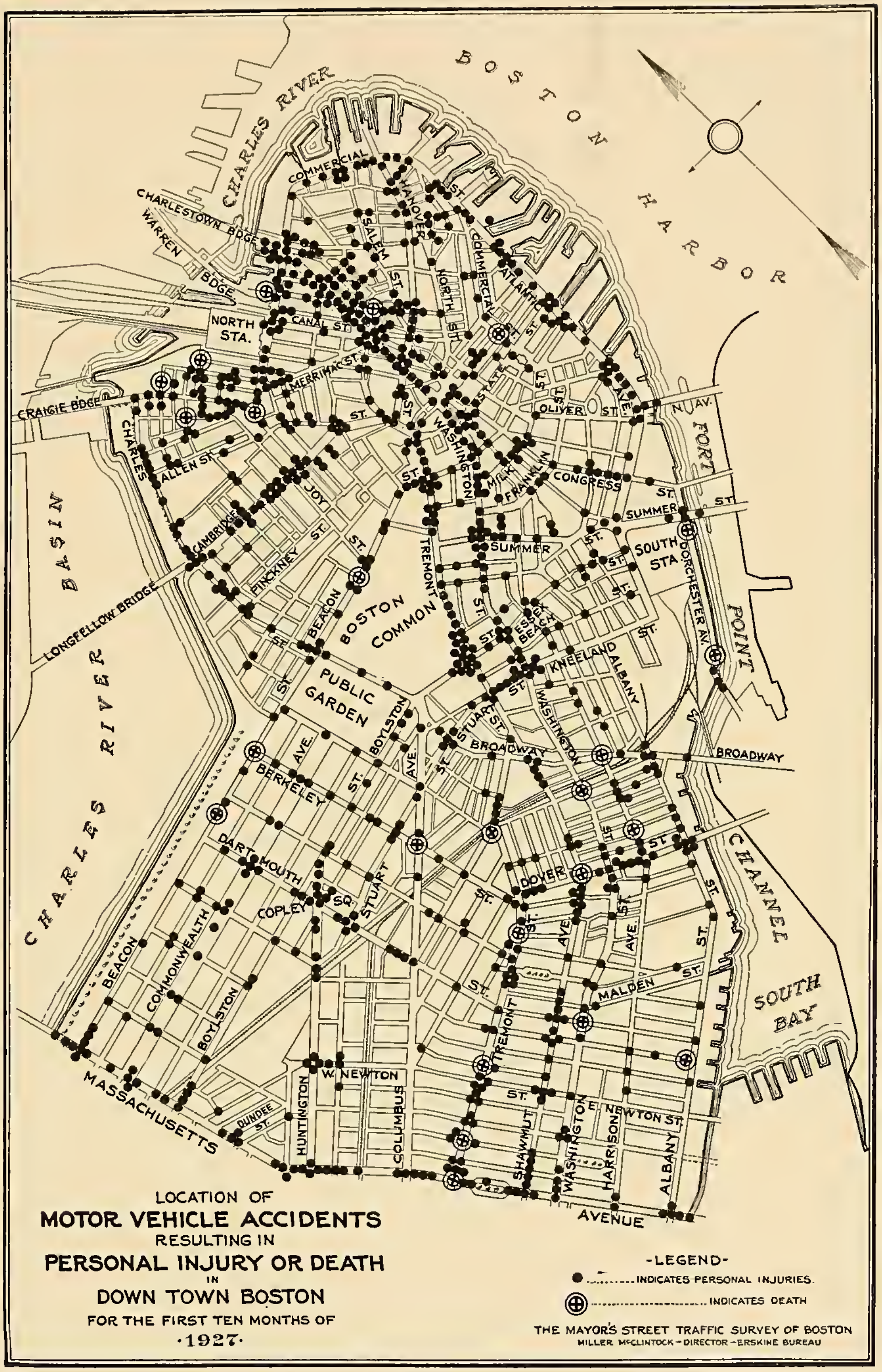
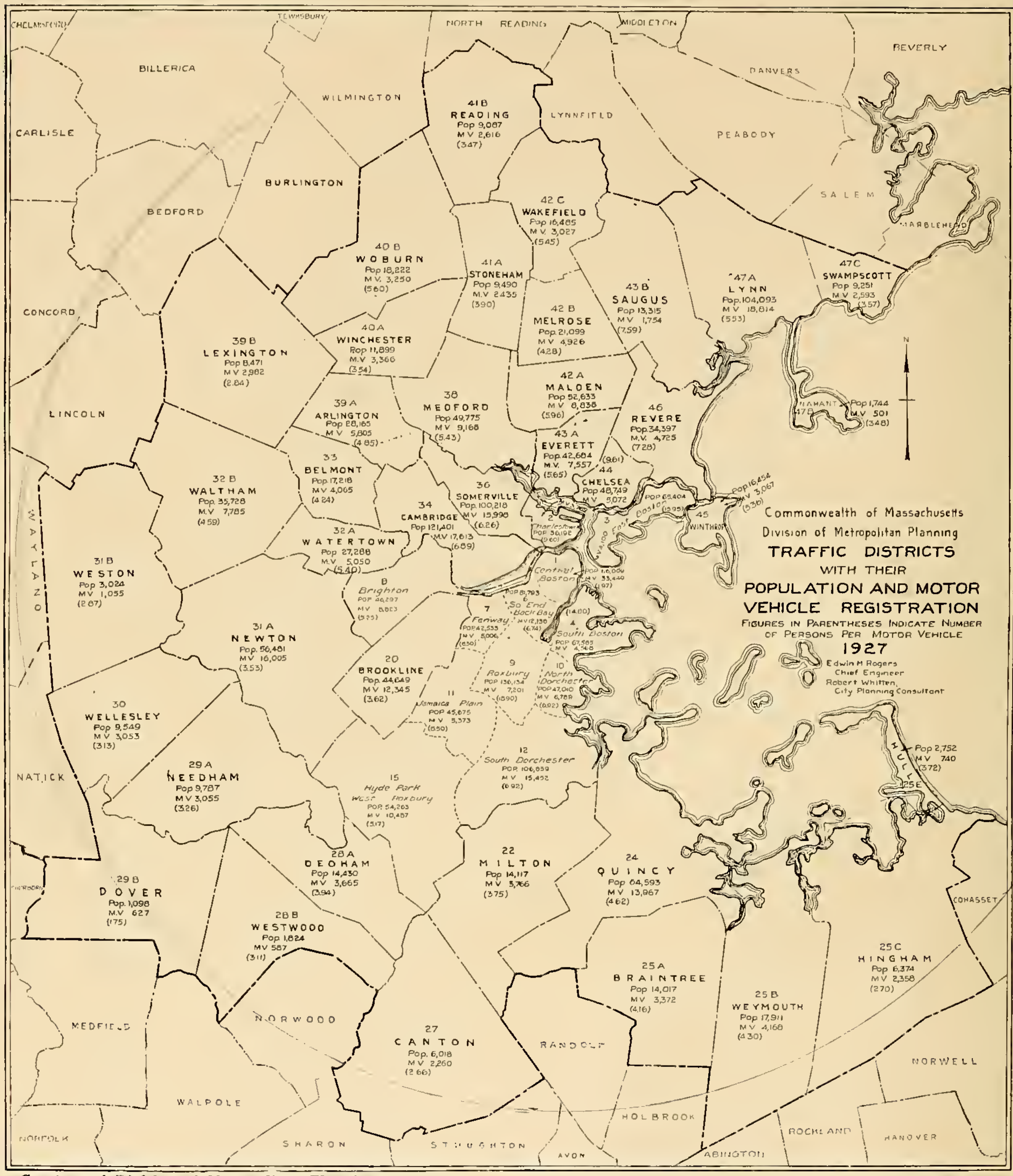


FIGURE 10

Note the accident density at Boylston and Tremont Streets, at Haymarket Square and along Atlantic Avenue, Washington, Tremont and Cambridge Streets.



Courtesy of Division of Metropolitan Planning.

FIGURE 11

The City of Boston was divided into 12 traffic districts which with the 38 cities and towns outside of Boston made a total of 50 traffic districts. There were in addition 19 gateway districts.

cordon traffic counts covered a period of 17 hours. The volume shown for the 17-hour period was 1.4 times the 10-hour traffic. The 17-hour count covered a period from 7 a. m. to 12 midnight. The amount of traffic entering the inner cordon between 12 midnight and 7 in the morning is very small indeed. Certain counts made by the State Highway Department covering the 24-hour period indicate that the 24-hour traffic in suburban locations is 1.76 times the 10-hour traffic. For most traffic streets within the Boston area the ratio of 24-hour traffic to 10-hour traffic may be assumed to be between 1.4 and 1.76 depending on the amount of travel after 6 p. m.

Very complete data is available as to hourly variations in traffic in the Holland Tunnel, New York City. The tunnel carried on a typical 24-hour day in 1929, 29,650 vehicles. The 24-hour traffic was 1.15 times the 17-hour traffic and 1.71 times the 10-hour traffic. The 17-hour traffic was 1.48 times the 10-hour traffic. The maximum hour was from 5 to 6 and amounted to 7.4 per cent of the 24-hour traffic and to 12.6 per cent of the 10-hour traffic. The maximum traffic occurred on a Sunday when 54,428 vehicles went through the tunnel. The maximum hourly Sunday traffic in one direction was 2,393 vehicles between 11 and 12 p. m. The maximum hourly week-day traffic in one direction occurred on a Saturday between 1 and 2 p. m. with 2,113 vehicles.

While on the inner cordon 31.6 per cent of the vehicles were commercial, the outer cordon (located just east of Massachusetts Avenue) showed but 16 per cent commercial. On Huntington Avenue, near Massachusetts Avenue, the commercial vehicles amounted to 11 per cent of the total.

From an analysis of the origin and destination checks and volume counts the total daily 10-hour traffic passing between various pairs of districts was determined. With this as a basis a definite relation between the number of motor vehicles owned in a district and the traffic to and from that district was determined, as was also a definite relation between the distance between any two districts and the traffic between them. It was found in general that traffic between any two pairs of traffic districts varies directly as the product of the motor vehicle registrations of the districts and inversely as the square of the distance between them. It was possible to state this in the form of a general traffic formula applicable to 10-hour inter-district traffic in the Boston area in the year 1927, as follows:

$$T = \frac{R_1\ R_2}{5500\ D^2}$$

In this formula T represents the total 10-hour traffic; R_1 and R_2 represent the respective motor vehicle registrations of any two traffic districts; D represents the distance in miles between the two traffic districts.

In applying the above traffic formula it was found necessary to make modifications in a number of instances. It was found that for Central Boston and for South Boston motor vehicle registration was not a correct indication of traffic importance. These downtown districts are largely devoted to business and industry and traffic to and from them is about double that that would be obtained by the use of their motor vehicle registrations in the above formula. Moreover, it was found that as to traffic to and from Central Boston the general rule that traffic varies as the square of the distance will not apply unless the distance factor is so adjusted as to take account also of the relative speed of travel. That traffic to and from Central Boston did not vary directly as the square of the distance was shown to be clearly due to the slowing up of traffic in and around the congested area.

Table II, opposite page 28, shows the average 10-hour 1927 traffic between each of 2,273 pairs of traffic districts. There were a total of 69 traffic districts, including 19 gateway districts. Combining these districts by twos gave 2,273 combinations or pairs.

In estimating future street traffic it may safely be assumed that general traffic will increase in the same ratio as the increase in motor vehicle registrations. To determine future motor vehicle registration it is necessary to determine the future population and the future ratio of number of motor vehicles to persons. Curves showing the number of motor vehicles per thousand persons for various states and for the United States as a whole indicate an increase at a fairly steady

Figure 12
The width of the shading is in proportion to the number of vehicles on each route.

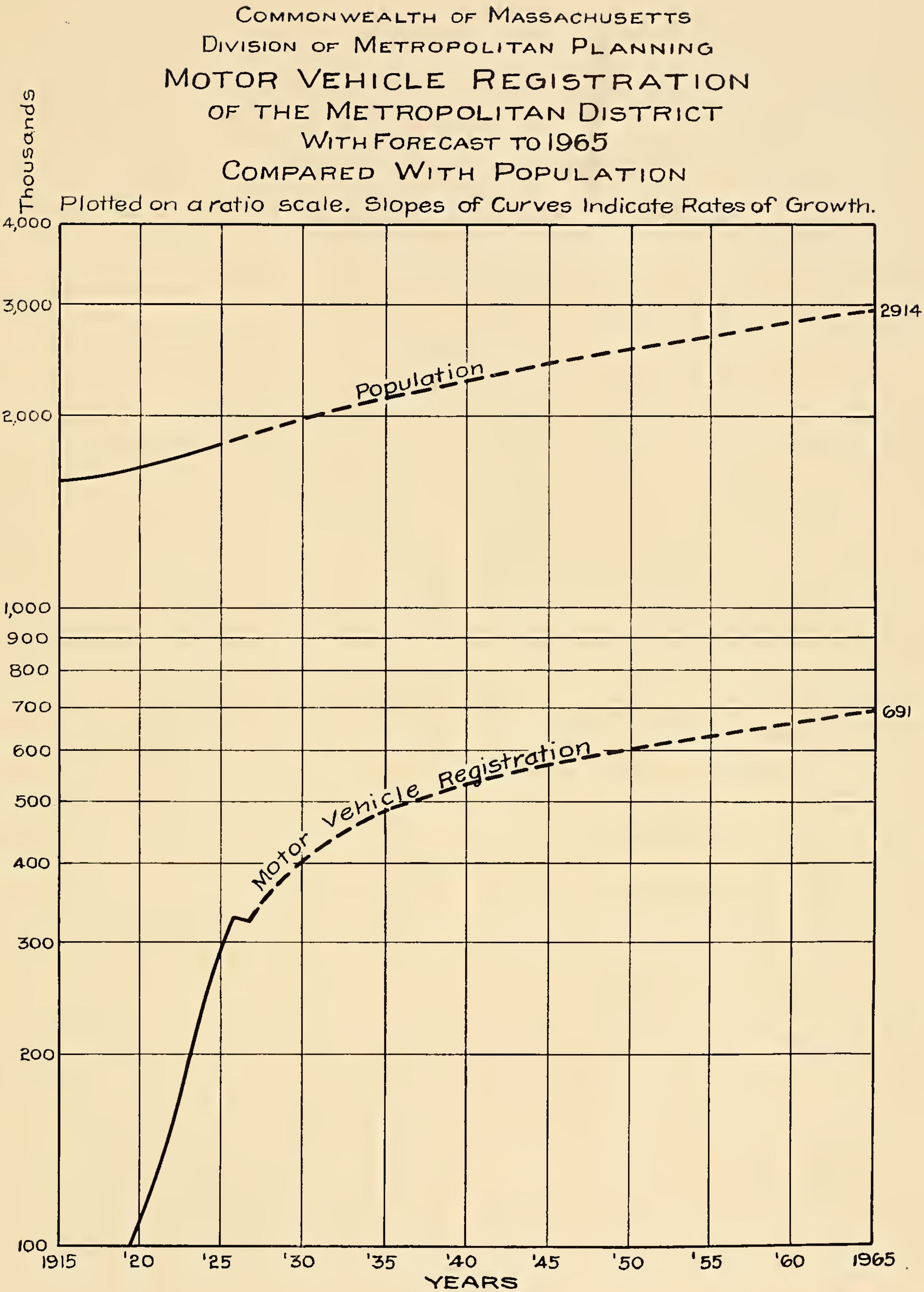

Commonwealth of Massachusetts
Division of Metropolitan Planning
Motor Vehicle Registration
of the Metropolitan District
With Forecast to 1965
Compared With Population
Plotted on a ratio scale. Slopes of Curves Indicate Rates of Growth.
Thousands
4,000
3,000
2,000
1,000
900
800
700
600
500
400
300
200
100
Population
2914
Motor Vehicle Registration
691
1915
'20
'25
'30
'35
'40
'45
'50
'55
'60
1965
YEARS

Figure 13

rate of increase each year from 1905 to 1923. Between 1923 and 1927 the rate of increase decreased each year. While in 1928 the rate increased somewhat over that for 1927, it appears very probable that a permanent change in the rate of growth of the automobile took place in 1923 and that future growth will be at a generally declining rate.

Table I.— Estimated Population and Motor Vehicle Registration of the Metropolitan District by Five-Year Periods to 1965

Year	Population	Motor vehicle registration	Ratio to 1927 registration	Cars per 1,000 persons	Persons per car
1927	1,860,264	329,183	1.00	177.0	5.65
1930	1,990,700	409,100	1.24	205.5	4.86
1935	2,139,500	481,000	1.46	224.8	4.45
1940	2,284,300	530,400	1.61	232.2	4.30
1945	2,425,100	570,100	1.73	235.1	4.26
1950	2,559,900	604,900	1.84	236.3	4.24
1955	2,686,700	635,700	1.93	236.7	4.23
1960	2,805,400	664,900	2.02	237.0	4.22
1965	2,914,100	690,700	2.10	237.0	4.22

Table I gives the estimated motor vehicle registration and number of cars per thousand persons in the metropolitan district by five-year periods to 1965. In 1927 there were 177 cars per thousand persons. By 1935 it is estimated there will be 224.8 cars per thousand persons. Subsequent to 1945 the increase in the number of cars per thousand persons will be almost negligible.

On the basis of the trend in the curve showing number of automobiles per thousand persons, the motor vehicle registration of each traffic district was computed for the year 1965. It was assumed that the general relationship between traffic registration and distance found to hold true in 1927 would hold true in 1965, and the traffic formula, with its constant varied to correspond with the increase in motor vehicle registration, became:

$$T = \frac{R_1\ R_2}{11{,}500\ D^2}$$

Using this general formula, modified in certain instances as already explained, the traffic between each pair of districts was estimated for 1965 as shown in Table III, opposite page 34.

The data contained on the tables giving the traffic between each pair of traffic districts in 1927 and 1965 was used in preparing diagrammatic flow maps (Figs. 14 and 15). A schematic diagram of radial and circumferential routes was prepared without regard to the location of existing highways, but so arranged as to secure a reasonably direct route between each pair of traffic districts. There are 8 of these imaginary radial, and 3 of the even more imaginary circumferential routes. The traffic between each pair of districts was then routed from district to district and the number of vehicles passing each station computed and plotted to form the diagrammatic flow map. The traffic to and from each district is shown by spurs out from the main route toward the district name. There are normally two such spurs to each district, one from a radial and one from a circumferential route. The district traffic was allotted to the circumferential spur or to the radial spur depending on which offered the more direct route between origin and destination. In routing from origin to destination that combination of radial and circumferential routes was used that gave the shortest trip. Central Boston and the South End-Back Bay districts were combined into a single district, called Boston Proper. The radials pass into but not through this district.

It is the purpose of the diagrammatic flow maps to indicate something of the origin and destination of the traffic volume and the traffic volume that would be convenienced by particular thoroughfare projects. A comparison of the 1927 and 1965 maps is particularly valuable as this indicates the varying ratio of increase in traffic that may be expected in various sections of the

TABLE II.—Number of Vehicles Passing Between Each Pair of Traffic Districts in Metropolitan Boston During a 10-Hour Day in 1927.

Commonwealth of Massachusetts
Division of Metropolitan Planning

Estimated Average Ten-Hour Traffic in Both Directions Between Each Pair of Traffic Districts Based on Analysis of Origin and Destination Counts

8 A.M. to 6 P.M. Summer 1927.

Robert Whitten City Planning Consultant, E.H. Rogers Chief Engineer.

TRAFFIC BETWEEN EACH PAIR OF DISTRICTS IN THE METROPOLITAN DISTRICT – TOTALED UNDER "A".

TRAFFIC BETWEEN DISTRICTS IN THE METROPOLITAN DISTRICT AND GATEWAY DISTRICTS – TOTALED UNDER "B".

Traffic Districts	No	1	2	3	4	6	7	8	9	10	11	12	15	20	22	24
Central Boston	1															
Charlestown	2	4105														
East Boston	3	1261	264													
South Boston	4	10799	469	181												
So. End-Back Bay	6	14585	817	190	1731											
Fenway	7	3521	213	96	385	1863										
Brighton	8	3200	229	67	304	1576	1533									
Roxbury	9	4990	[illegible]	140	1321	4270	1992	757								
North Dorchester	10	1482	121	52	639	855	216	146	2093							
Jamaica Plain	11	1490	83	40	240	911	380	307	1098	185						
South Dorchester	12	2795	150	78	651	1145	334	365	1327	783	606					
Hyde Park West Roxbury	15	1389	92	44	247	870	365	352	533	160	696	1621				
Brookline	20	5587	286	102	686	3208	2003	4575	2129	389	1306	744	620			
Milton	22	884	30	11	169	281	65	112	142	64	150	445	416	112		
Quincy	24	1807	94	60	330	850	278	202	759	491	305	2864	620	335	806	
Braintree	25A	307	5	10	53	158	45	30	40	26	34	180	85	37	16	710
Weymouth	25B	355	16	10	57	147	31	30	42	27	39	133	61	40	18	366
Hingham	25C	154	5	3	17	82	16	10	11	6	9	37	18	12	12	152
Hull	25E	675	15	15	46	215	61	46	46	15	31	61	46	46	31	348
Canton	27	124	6	5	16	55	17	12	14	7	19	38	50	16	53	64
Dedham	28A	204	16	8	37	155	53	49	66	10	96	134	342	72	41	103
Westwood	28B	42	2	1	7	25	9	7	7	5	10	19	37	11	5	17
Needham	29A	169	16	7	26	138	40	27	33	15	33	45	78	63	16	33
Dover	29B	19	1	1	3	13	4	6	3	1	2	4	3	3	1	3
Wellesley	30	163	14	7	27	124	39	69	34	11	26	35	38	62	11	18
Newton	31A	1884	96	73	300	1339	511	2032	456	191	407	280	297	1312	77	127
Weston	31B	51	4	2	8	37	11	28	12	3	9	16	6	71	3	4
Watertown	32A	742	77	31	135	914	209	861	165	46	112	117	96	379	19	37
Waltham	32B	516	58	20	98	404	195	569	114	29	58	72	60	275	17	32
Belmont	33	747	75	27	83	455	158	241	76	31	48	60	57	184	11	18
Cambridge	34	9072	1456	567	1026	4617	1787	3147	1649	331	457	1038	641	1928	250	489
Somerville	36	4622	1200	378	473	1626	578	707	608	143	121	281	156	664	54	153
Medford	38	2108	219	154	186	650	254	342	214	52	66	142	82	321	24	68
Arlington	39A	1078	121	66	121	710	197	239	169	44	76	97	53	227	13	72
Lexington	39B	233	26	10	30	139	45	52	23	8	16	20	21	42	4	16
Winchester	40A	593	50	25	48	177	59	71	57	14	17	25	26	64	4	19
Woburn	40B	315	39	15	49	184	47	66	33	11	17	25	20	58	5	19
Stoneham	41A	175	37	15	47	99	30	54	18	6	10	14	11	30	5	10
Reading	41B	176	16	9	15	75	42	23	14	4	7	10	8	22	4	7
Malden	42A	1661	398	261	345	959	110	219	201	37	46	87	34	127	19	49
Melrose	42B	742	129	69	69	394	100	100	80	22	28	66	42	67	21	37
Wakefield	42C	237	29	14	37	139	40	37	23	6	12	17	16	28	6	12
Everett	43A	1406	555	527	226	446	163	231	176	65	50	121	93	185	30	76
Saugus	43B	164	55	16	21	83	25	22	14	5	6	14	9	19	4	8
Chelsea	44	2153	708	[illegible]	248	609	173	173	211	61	58	142	89	248	34	69
Winthrop	45	390	58	141	46	208	42	50	37	25	26	35	24	44	9	22
Revere	46	1036	140	161	101	444	101	90	109	17	35	87	36	119	26	42
Lynn	47A	1649	173	138	244	[illegible]	156	154	157	28	49	71	48	153	21	54
Nahant	47B	30	3	2	4	14	4	4	2	1	1	3	2	4	1	2
Swampscott	47C	157	19	14	2	101	25	17	14	4	8	13	10	22	4	10
Marblehead	50	400	208	[illegible]	[illegible]	110	[illegible]	44	37	5	16	24	35	50	9	27
Salem Easterly Road	51	[illegible]	44	54	92	201	48	68	79	10	28	68	54	90	22	65
Salem Turnpike	52	484	30	57	80	150	34	59	63	8	21	45	34	70	15	40
Newburyport Turnpike	53	698	60	62	90	198	54	86	80	12	23	50	44	92	19	49
Andover and Lawrence Road	54	500	39	22	82	156	45	84	72	10	27	67	49	99	18	49
Wilmington and Lowell Road	55	346	20	10	38	78	21	45	35	5	15	25	21	48	5	25
Billerica and Lowell Road	56	288	24	11	44	90	25	32	39	6	14	26	22	55	5	25
Carlisle and Groton Road	57	170	28	13	39	100	30	58	45	6	20	33	33	62	7	31
Concord-Fitchburg Road	59	441	34	12	14	118	49	102	76	10	34	58	57	105	12	54
Kendall Green-Leominster Road	60	[illegible]	11	1	38	98	29	73	50	7	22	37	31	87	10	22
Boston-Worcester Road	61	554	33	24	84	200	63	104	123	11	75	85	81	174	31	65
Framingham Road	62	448	28	21	70	168	56	140	102	15	53	93	102	155	31	60
Medfield and Milford Road	63	170	8	8	28	64	[illegible]	32	37	7	32	61	106	48	21	45
Boston-Providence Road	64	726	33	41	118	[illegible]	90	141	102	28	155	318	580	213	96	159
Stoughton Turnpike	65	604	56	37	120	250	65	107	142	28	110	247	331	141	198	277
Randolph Turnpike	66	270	14	14	60	82	25	38	73	14	44	158	41	350	37	485
Abington and Bridgewater Road	67	352	19	15	82	117	34	45	78	18	45	184	93	67	29	304
Plymouth Road	68	426	29	23	98	134	45	54	93	21	56	179	111	82	35	342
Plymouth Shore Road	69	376	21	24	82	150	35	61	80	16	30	118	94	77	60	408
Total A		41655	13211	6787	22340	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7570	[illegible]
Total B		8076	784	504	1344	2781	749	1475	1444	240	819	1850	1914	2085	660	2528
Total A and B		[illegible]	[illegible]	7214	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9219	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Traffic Districts	No	25A	25B	25C	25E	27	28A	28B	29A	29B	30	31A	31B	32A	32B	33
Weymouth	25B	142														
Hingham	25C	16	116													
Hull	25E	31	92	31												
Canton	27	7	7	1	1											
Dedham	28A	8	7	2	10	19										
Westwood	28B	1	1	0	3	2	65									
Needham	29A	5	4	1	2	7	76	7								
Dover	29B	1	0	0	1	1	3	0	11							
Wellesley	30	4	3	1	4	2	17	2	31	2						
Newton	31A	18	27	6	34	23	107	14	426	16	207					
Weston	31B	1	1	0	1	1	3	0	5	0	50	204				
Watertown	32A	6	11	2	15	6	25	4	67	6	37	4540	21			
Waltham	32B	6	8	2	5	5	19	3	43	3	107	1722	103	1096		
Belmont	33	9	7	1	4	3	10	2	22	2	35	468	11	574	477	
Cambridge	34	114	127	36	153	45	110	19	101	11	202	1408	36	639	452	564
Somerville	36	31	29	8	31	11	27	5	22	2	24	586	10	345	198	201
Medford	38	14	12	3	11	4	13	2	10	1	11	192	4	115	75	201
Arlington	39A	14	13	3	9	4	14	2	25	2	23	310	12	314	157	1836
Lexington	39B	3	6	1	1	1	3	1	5	0	3	50	3	43	27	78
Winchester	40A	4	5	1	3	2	4	1	6	1	8	58	3	43	27	73
Woburn	40B	5	5	1	2	2	4	1	6	1	6	47	2	30	21	42
Stoneham	41A	3	3	1	1	1	2	0	2	0	3	18	1	11	8	14
Reading	41B	2	2	1	1	1	2	0	2	0	2	14	1	8	6	9
Malden	42A	8	8	2	8	3	7	1	7	1	6	89	2	77	34	59
Melrose	42B	10	10	3	11	3	8	1	7	1	8	49	3	32	20	46
Wakefield	42C	3	4	1	2	1	4	1	3	0	3	22	1	11	8	14
Everett	43A	15	15	4	15	6	12	2	12	1	13	110	4	62	51	63
Saugus	43B	2	2	1	2	1	1	0	1	0	1	10	1	6	4	8
Chelsea	44	16	15	4	14	6	13	2	12	1	11	138	4	50	35	50
Winthrop	45	4	4	1	1	2	4	1	3	0	3	28	1	13	10	11
Revere	46	7	6	2	13	3	11	1	5	1	5	57	2	21	15	20
Lynn	47A	9	8	2	17	4	8	1	7	1	7	83	2	35	38	35
Nahant	47B	0	0	0	1	0	0	0	0	0	0	4	0	1	1	1
Swampscott	47C	2	2	1	2	1	2	0	2	0	2	23	1	6	4	6
Marblehead	50	5	5	2	0	2	4	1	4	0	4	35	1	14	14	12
Salem Easterly Road	51	12	13	5	1	5	11	2	9	1	9	81	3	30	[illegible]	[illegible]
Salem Turnpike	52	8	9	3	1	3	7	1	6	1	6	57	2	22	22	20
Newburyport Turnpike	53	11	11	3	1	4	7	1	7	1	8	62	3	29	28	37
Andover and Lawrence Road	54	12	13	4	1	5	10	2	9	1	7	83	3	[illegible]	37	39
Wilmington and Lowell Road	55	5	6	2	1	2	4	1	6	1	6	47	2	24	22	28
Billerica and Lowell Road	56	5	6	2	1	2	4	1	6	1	6	52	2	27	[illegible]	[illegible]
Carlisle and Groton Road	57	6	7	2	1	2	6	1	8	1	8	72	4	44	37	57
Concord-Fitchburg Road	59	12	13	4	1	4	11	2	14	2	14	122	7	71	—	87
Kendall Green-Leominster Road	60	5	7	2	1	3	9	2	14	1	22	189	—	84	246	52
Boston-Worcester Road	61	12	17	5	1	9	28	5	47	4	190	[illegible]	213	144	364	92
Framingham Road	62	13	11	4	1	7	37	6	72	6	[illegible]	324	42	78	152	48
Medfield and Milford Road	63	7	7	2	1	9	63	30	22	2	11	68	2	19	17	10
Boston-Providence Road	64	28	27	9	3	41	460	176	112	8	46	275	9	92	70	39
Stoughton Turnpike	65	68	57	13	4	251	94	14	49	6	23	192	7	[illegible]	[illegible]	32
Randolph Turnpike	66	44	24	16	1	31	13	2	8	0	5	43	2	12	[illegible]	7
Abington and Bridgewater Road	67	100	455	63	7	11	[illegible]	2	8	1	7	62	3	[illegible]	2	14
Plymouth Road	68	108	421	67	9	13	16	3	10	1	8	76	3	27	[illegible]	17
Plymouth Shore Road	69	55	151	54	—	[illegible]	17	3	11	1	9	57	3	18	19	11
Total A		[illegible]	2072	799	[illegible]	688	[illegible]	347	173	141	1543	[illegible]	[illegible]	1892	[illegible]	7222
Total B		516	1260	262	[illegible]	414	[illegible]	[illegible]	422	39	743	[illegible]	311	[illegible]	[illegible]	[illegible]
Total A and B		2781	2332	1061	[illegible]	1102	[illegible]	602	2154	180	2286	[illegible]	[illegible]	[illegible]	8395	[illegible]

Traffic Districts	No	34	36	38	39A	39B	40A	40B	41A	41B	42A	42B	42C	43A	43B	44
Somerville	36	7910														
Medford	38	1095	779													
Arlington	39A	1018	544	853												
Lexington	39B	162	62	74	250											
Winchester	40A	236	89	96	370	37										
Woburn	40B	211	70	57	156	[illegible]	31									
Stoneham	41A	116	45	131	63	11	148	140								
Reading	41B	78	30	40	29	6	23	35	44							
Malden	42A	944	688	1388	[illegible]	24	[illegible]	145	56	20						
Melrose	42B	328	239	468	87	18	86	47	202	44	992					
Wakefield	42C	130	48	85	44	10	42	57	[illegible]	122	110	186				
Everett	43A	700	568	704	122	23	53	41	43	22	1994	375	54			
Saugus	43B	73	28	29	14	3	6	8	20	16	89	76	64	48		
Chelsea	44	567	403	354	106	20	36	30	23	14	496	140	31	[illegible]	22	
Winthrop	45	144	63	54	26	5	10	9	5	4	53	31	8	123	6	161
Revere	46	272	127	119	41	8	18	16	15	9	[illegible]	91	18	[illegible]	21	[illegible]
Lynn	47A	416	249	180	74	12	29	27	55	55	382	513	278	[illegible]	381	394
Nahant	47B	12	4	3	2	0	1	1	1	1	4	6	3	5	2	5
Swampscott	47C	71	[illegible]	20	11	3	5	5	6	6	26	33	16	28	12	26
Marblehead	50	[illegible]	[illegible]	[illegible]	35	6	7	20	13	13	65	[illegible]	[illegible]	[illegible]	24	48
Salem Easterly Road	51	158	131	110	75	14	23	27	24	26	114	146	58	109	39	105
Salem Turnpike	52	136	95	70	48	9	15	16	16	18	[illegible]	123	45	88	34	86
Newburyport Turnpike	53	[illegible]	145	131	87	16	27	34	57	—	207	[illegible]	157	167	338	91
Andover and Lawrence Road	54	[illegible]	143	156	141	27	65	97	76	313	89	[illegible]	156	85	42	60
Wilmington and Lowell Road	55	98	64	50	96	23	60	184	34	19	65	48	29	31	6	25
Billerica and Lowell Road	56	117	76	[illegible]	128	30	99	450	53	24	86	39	38	36	7	29
Carlisle and Groton Road	57	128	90	81	165	138	32	40	13	9	38	[illegible]	14	32	5	29
Concord-Fitchburg Road	59	[illegible]	146	131	243	164	50	63	21	16	84	[illegible]	23	54	9	41
Kendall Green-Leominster Road	60	102	62	36	63	—	12	12	5	4	[illegible]	18	6	22	3	21
Boston-Worcester Road	61	[illegible]	127	68	156	27	29	28	9	8	44	[illegible]	12	47	6	45
Framingham Road	62	136	81	48	87	15	18	18	7	6	33	29	10	35	3	33
Medfield and Milford Road	63	48	2	16	18	3	4	5	2	2	11	9	3	10	2	11
Boston-Providence Road	64	232	[illegible]	63	75	13	15	19	9	8	[illegible]	36	12	41	6	48
Stoughton Turnpike	65	[illegible]	111	68	66	13	15	17	10	9	48	42	13	[illegible]	8	59
Randolph Turnpike	66	[illegible]	32	21	14	3	3	4	3	3	16	12	4	17	2	19
Abington and Bridgewater Road	67	102	59	[illegible]	41	7	9	11	5	[illegible]	[illegible]	24	7	[illegible]	4	[illegible]
Plymouth Road	68	123	72	44	[illegible]	9	11	14	7	6	31	29	9	[illegible]	[illegible]	33
Plymouth Shore Road	69	92	62	38	[illegible]	8	10	12	5	5	[illegible]	[illegible]	8	[illegible]	5	28
Total A		[illegible]	[illegible]	[illegible]	[illegible]	1689	3167	3491	[illegible]	1101	[illegible]	6125	2138	2061	1424	[illegible]
Total B		2634	1683	1280	1627	525	[illegible]	1071	[illegible]	493	1122	1211	618	977	550	831
Total A and B		[illegible]	[illegible]	[illegible]	[illegible]	2214	[illegible]	[illegible]	[illegible]	1594	[illegible]	[illegible]	2756	[illegible]	[illegible]	[illegible]

Traffic Districts	No	45	46	47A	47B	47C	50	51	52	53	54	55	56	57	59	60	61	62	63	64	65	66	67	68	69
Revere	46	132																							
Lynn	47A	185	1288																						
Nahant	47B	3	11	[illegible]																					
Swampscott	47C	14	61	1972	16																				
Marblehead	50	[illegible]	[illegible]	[illegible]	22	750																			
Salem Easterly Road	51	52	153	1960	27	512	—																		
Salem Turnpike	52	37	116	1768	25	—	—	—																	
Newburyport Turnpike	53	27	74	[illegible]	8	44	—																		
Andover and Lawrence Road	54	18	38	221	4	25	—	—																	
Wilmington and Lowell Road	55	8	14	42	1	6	—																		
Billerica and Lowell Road	56	9	16	43	1	6	4	38	23	47		—													
Carlisle and Groton Road	57	9	13	38	1	5	4	31	19	39	—	—	—												
Concord-Fitchburg Road	59	15	23	69	2	9	7	59	35	56	—	—	—	—											
Kendall Green-Leominster Road	60	6	10	30	1	4	—	—	—	—	—	—	—	—											
Boston-Worcester Road	61	13	20	63	1	8	7	5	35	41	73	—	—	—	—	—									
Framingham Road	62	10	16	51	1	6	5	47	28	29	50	27	33	—	—	—	—								
Medfield and Milford Road	63	4	6	18	0	2	2	13	8	10	11	5	6	7	—	—	—	—							
Boston-Providence Road	64	14	22	65	1	8	6	[illegible]	34	37	46	24	23	32	—	53	40	100	—						
Stoughton Turnpike	65	17	28	65	2	11	8	72	43	42	58	27	26	32	—	53	[illegible]	92	126	—					
Randolph Turnpike	66	5	9	[illegible]	1	3	2	19	12	12	15	6	6	7	—	13	8	25	25	—	—				
Abington and Bridgewater Road	67	8	13	42	1	[illegible]	4	[illegible]	21	[illegible]	30	12	12	15	—	[illegible]	14	[illegible]	[illegible]	—	—	—			
Plymouth Road	68	10	16	51	1	6	6	[illegible]	[illegible]	31	[illegible]	16	16	19	—	[illegible]	19	[illegible]	45	—	—	—	—		
Plymouth Shore Road	69	10	15	[illegible]	1	6	5	45	27	[illegible]	34	13	13	17	—	[illegible]	16	43	39	—	—	—	—	—	
Total A		[illegible]	6112	[illegible]	849	[illegible]	[illegible]	5592	4105	[illegible]	3718	1695	2262	1929	[illegible]	1861	[illegible]	3344	1152	5378	4489	2179	701	[illegible]	2544
Total B		302	728	[illegible]	101	[illegible]	[illegible]	[illegible]	315	397	[illegible]	[illegible]	247	222	157	219	[illegible]	[illegible]	332	451	617	[illegible]	272	[illegible]	[illegible]
Total A and B		[illegible]	[illegible]	[illegible]	950	[illegible]	[illegible]	6115	[illegible]	[illegible]	[illegible]	1623	[illegible]	2151	3222	[illegible]	[illegible]	3912	1484	5829	[illegible]	[illegible]	[illegible]	3441	2857

TRAFFIC BETWEEN EACH PAIR OF GATEWAY DISTRICTS – TOTALED UNDER "B".

The Individual Items Represent Average Conditions. They Are Intended Not For Individual Application But For Use in Groups To Determine Traffic For a Highway Project.

Courtesy of Division of Metropolitan Planning.

Table 11.—Number of Vehicles Passing Between Each Pair of Traffic Districts in Metropolitan Boston During a 10-hour Day in 1927. Based on Origin and Destination Counts Supplemented by Traffic Formulae.

community. Though it is estimated that for the metropolitan district as a whole there will be approximately 2.1 times as much traffic in 1965 as in 1927, the varying rates of growth in population of the traffic districts and the varying ratio of persons per motor vehicle will obviously bring about an uneven distribution of traffic increase throughout the metropolitan district. This is clearly shown by comparison of the 1927 and 1965 diagrammatic flow maps. The normal ratio of increase of 1965 over 1927 varies from 1.5 to 3 times. The greater ratios usually occur in the outer portion of the district where the larger increases in population are to be expected. The ratios are especially high in the sectors to the west and the south. The increase in the outer circumferential flow is especially apparent.

Having the number of vehicles passing daily between each of the 69 traffic districts into which the area of the metropolitan district is divided for the purpose of the traffic analysis it is possible to estimate very closely the effect on the traffic flow that will be produced by carrying into effect the proposals of the Thoroughfare Plan. This is shown graphically in Figs. 1, 2 and 3. The present flow is shown in Figs. 1 and 2. By comparing these "before and after" pictures the value of the various projects is clearly demonstrated.

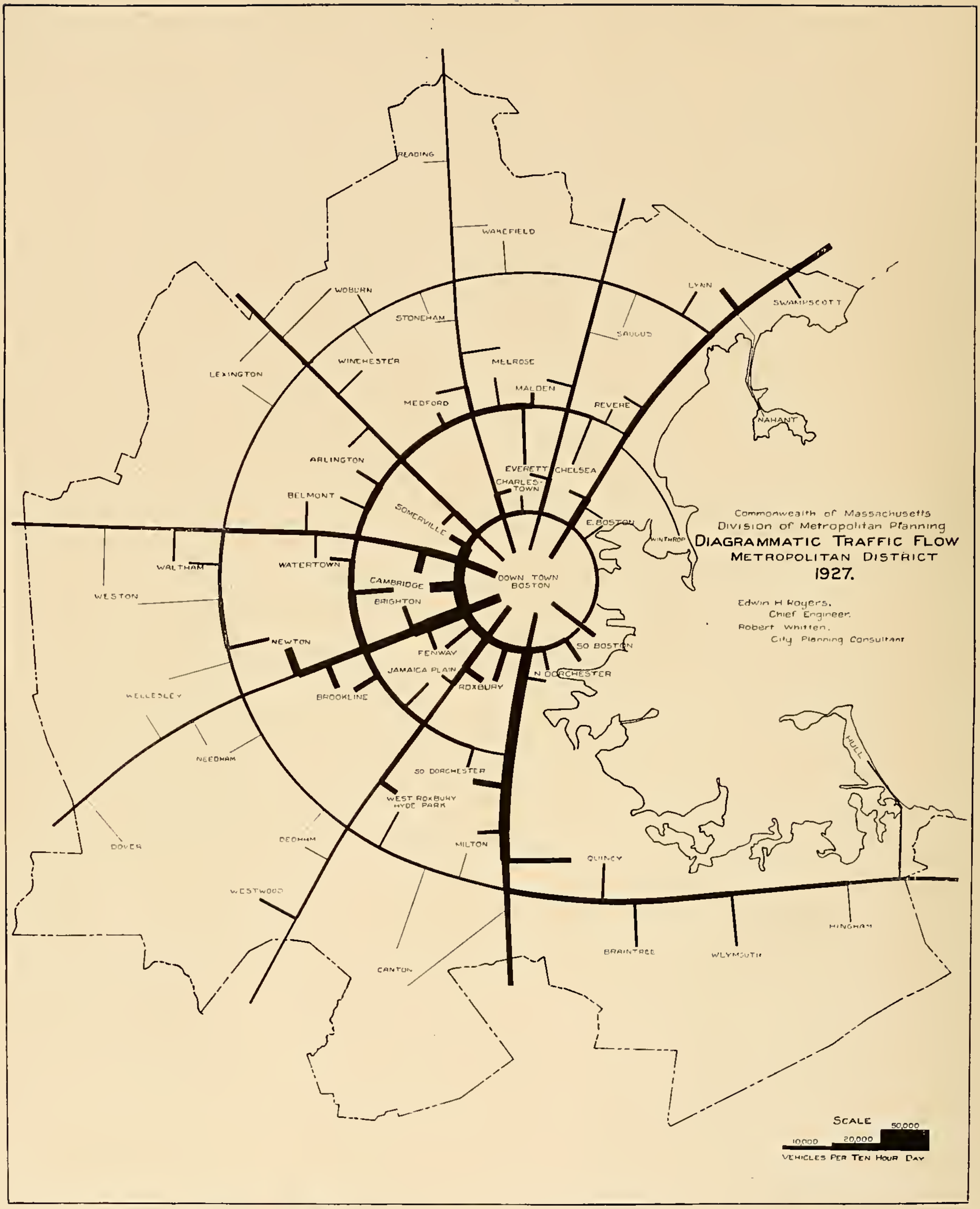
Fig. 3 is an estimated distribution of the 1965 10-hour traffic assuming the completion of all the improvements contained in the Thoroughfare Plan. The 1965 traffic will in general be 2.1 times the 1927 traffic. Owing, however, to the varying rates of growth in the various parts of the metropolitan district, the 1965 traffic as shown in Fig. 3 varies in different parts of the city from $1\frac{1}{2}$ to $2\frac{1}{2}$ times the 1927 traffic.

Accurate information as to the present average speed of vehicles throughout the existing traffic system is of very great importance both in locating the difficulties of the present highway layout, and in determining the design and economic value of the projects contained in a thoroughfare plan. Studies made by Miller McClintock had determined the travel time on all traffic routes in Boston Proper (Fig. 17) and also on 16 main routes radiating in every direction from central Boston (Fig. 16). These travel time studies showed at once the comparative inadequacy of the existing routes leading to the northeast and south from central Boston. These studies also showed a serious slowing up of traffic in various locations. The travel time studies give a basis for estimating the saving of time to vehicles using the proposed new routes as compared with present routes of travel.

The estimated economic saving resulting from the various projects contained in the Plan have as a rule been based chiefly on the estimated time saving to the users. The value of the time saving has been estimated at 2 cents per minute. This is assumed to cover the cost of operating the vehicle together with some allowance for the time of the passengers. It costs 5 or 6 cents a minute to operate a heavy truck and probably about the same amount for a high-priced passenger car with chauffeur. For small trucks, including the time of the driver, the cost can scarcely be less than 2.5 cents a minute. Even for a cheap passenger car driven by the owner the cost of operation plus the time of occupant or occupants cannot average less than 2 cents a minute. Counts made by the Mayor's Street Traffic Survey show that the private passenger automobile carries an average of 1.9 persons. Assuming that the time of these passengers may be valued at but 60 cents an hour or 1 cent a minute, this alone will account for 1.9 cents per automobile, leaving but one-tenth of a cent to be charged to cost of operation, to make up the assumed time value of 2 cents per minute per automobile.

A count of the number of persons carried by the vehicles entering the inner cordon made by the Mayor's Street Traffic Survey shows an average of 1.84 persons per vehicle. This is a somewhat higher average of persons per vehicle than has been found in traffic studies in a number of other cities, 1.7 persons per vehicle being the more usual figure. While the average was 1.84 persons per vehicle for all vehicles, this ratio was 1.94 in the case of passenger automobiles, 1.59 in the case of trucks, and 1.36 for horse-drawn vehicles.

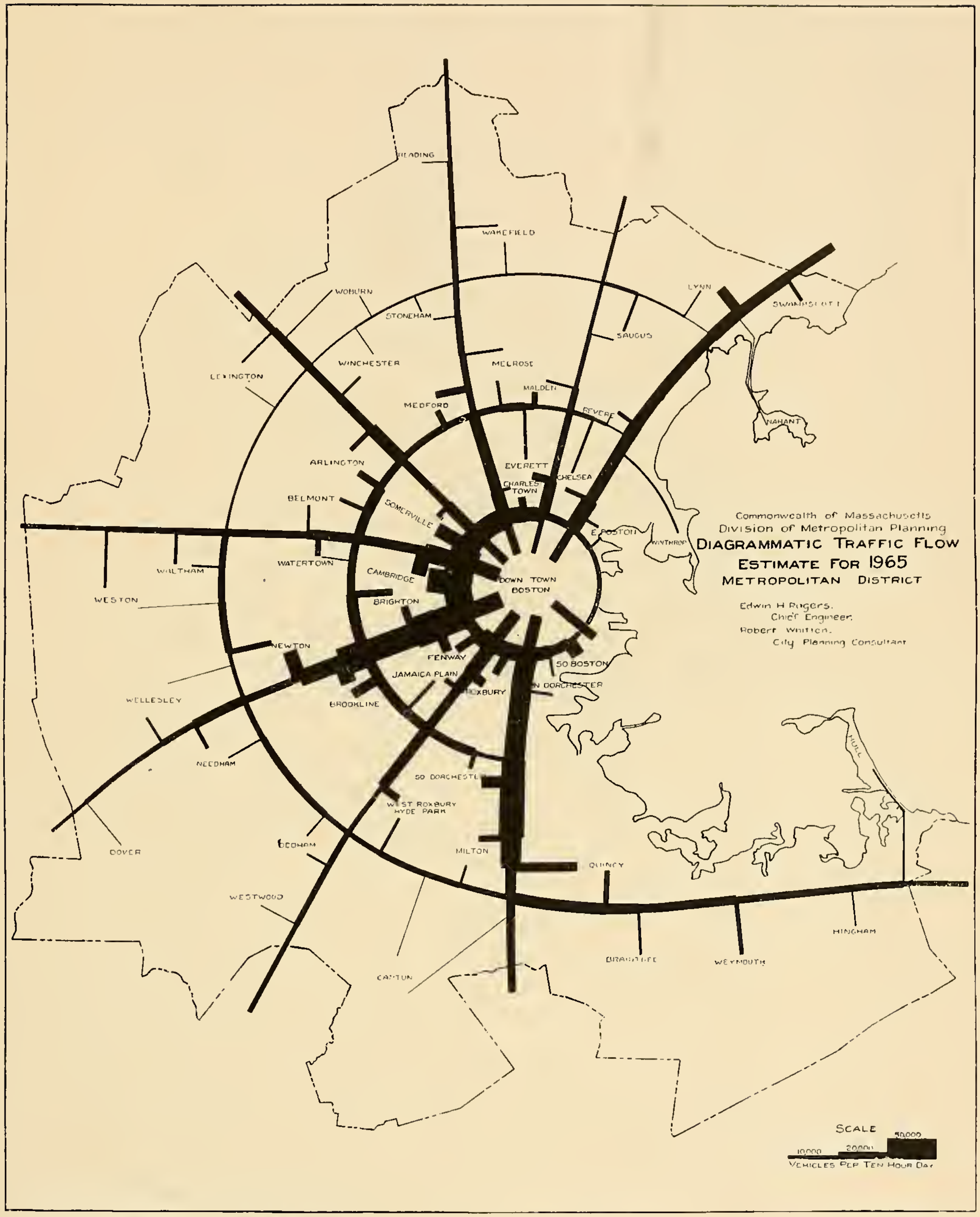
The general ratio of increase in traffic as compared with 1927 is shown by five-year periods to 1965 in Table 1. As traffic in Boston will in



Courtesy of Division of Metropolitan Planning.

FIGURE 14.—DIAGRAMMATIC TRAFFIC FLOW, METROPOLITAN BOSTON, 1927.

Traffic routed from origin to destination over an imaginary system of main routes. The width of the black lines shows the relative amount of traffic on the various routes during a 10-hour day.



Courtesy of Division of Metropolitan Planning.

FIGURE 15.—DIAGRAMMATIC TRAFFIC FLOW, METROPOLITAN BOSTON, ESTIMATED FOR 1965.

A comparison of Figure 15 with Figure 14 shows the estimated increase in traffic between 1927 and 1965. Both diagrams point to the need of radial express roads to the northeast and south and of one or more circumferential routes around Central Boston.

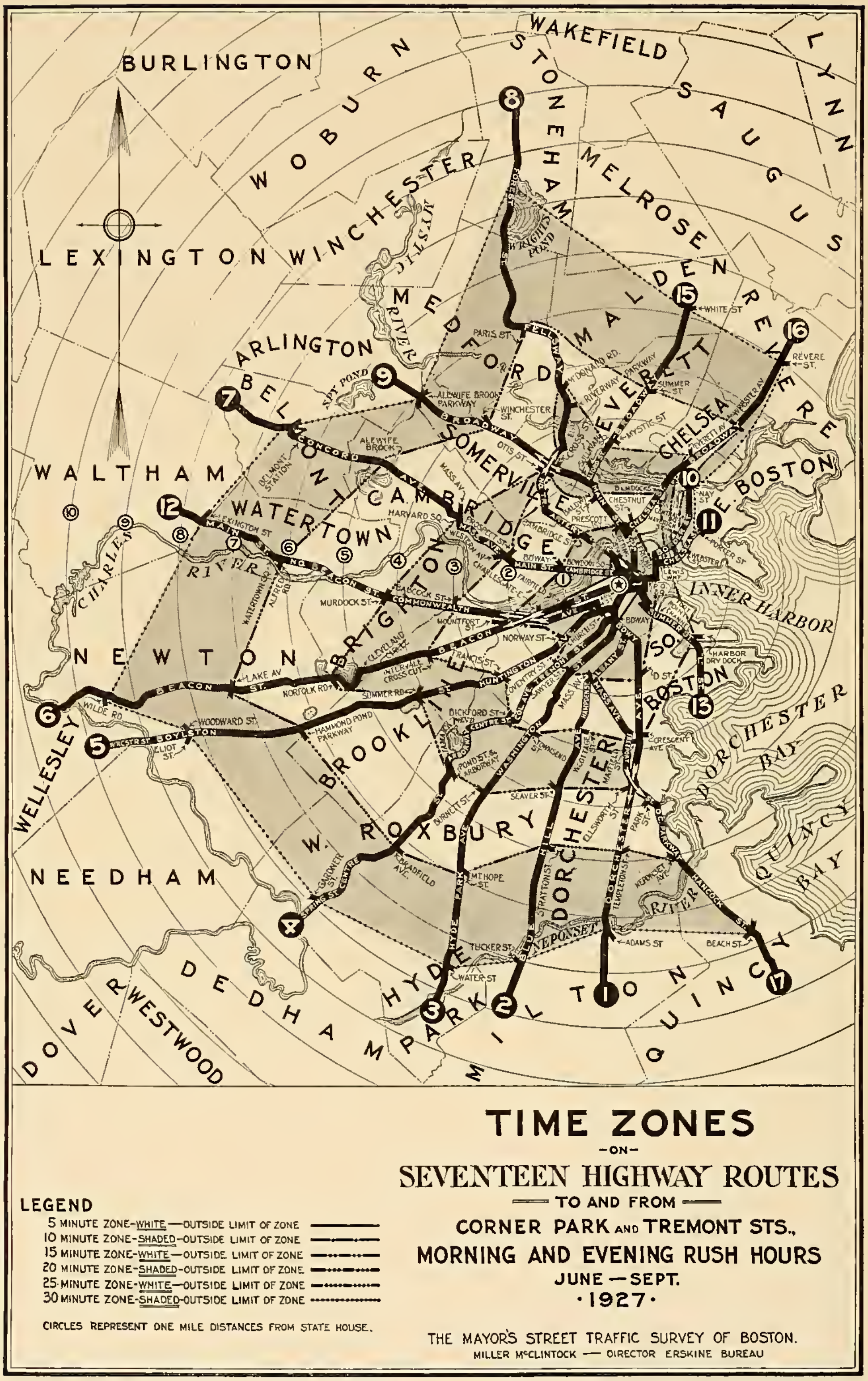


FIGURE 16

The slowest routes out of Central Boston are those to the north via the ferries and the Charlestown and Warren Bridges. The next slowest are those south via Albany Street and Dorchester Avenue.

TABLE III.—Estimate for 1965 of Number of Vehicles Passing Between Each Pair of Traffic Districts in Metropolitan Boston.

Commonwealth of Massachusetts

Division of Metropolitan Planning

Estimated Average Ten-Hour Traffic in Both Directions Between Each Pair of Traffic Districts 1965

Robert Whitten City Planning Consultant, E.H Rogers Chief Engineer

Estimated traffic between each pair of districts in the metropolitan district—totaled under "A" for 1965.

Estimated traffic between districts in the metropolitan district and gateway districts—totaled under "B" for 1965.

Traffic Districts	No	1	2	3	4	6	7	8	9	10	11	12	15	20	22	24
Central Boston	1															
Charlestown	2	6010														
East Boston	3	2212	307													
South Boston	4	19029	1072	365												
So End-Back Bay	6	27924	2900	782	6150											
Fenway	7	6646	543	143	1317	7502										
Brighton	8	5267	359	77	604	2710	2305									
Roxbury	9	9517	497	131	2141	7589	5669	823								
North Dorchester	10	3465	118	34	927	1284	313	210	1559							
Jamaica Plain	11	3817	215	60	611	2338	1014	513	1817	214						
South Dorchester	12	4161	267	104	1455	2396	570	507	1797	1060	1340					
Hyde Park West Roxbury	15	3838	153	57	524	1583	734	543	714	170	1615	3129				
Brookline	20	12177	784	213	1900	7519	5032	8116	4599	541	3112	1794	1655			
Milton	22	2153	121	54	523	811	268	201	494	127	693	8398	1239	607		
Quincy	24	5376	250	135	1147	1606	600	348	790	441	769	6847	2149	905	2241	
Braintree	25A	727	35	19	152	253	77	51	92	30	90	454	244	119	92	2418
Weymouth	25B	1072	40	23	187	235	97	59	104	45	101	391	197	144	117	1585
Hingham	25C	381	12	8	56	90	26	19	27	11	27	96	59	44	45	418
Hull	25E	465	15	10	55	21	35	30	30	10	30	75	60	60	112	425
Canton	27	441	15	8	51	110	34	30	36	13	61	112	199	61	364	204
Dedham	28A	986	39	17	122	297	139	102	145	27	318	364	1159	278	254	311
Westwood	28B	276	9	5	35	75	51	28	27	8	52	79	210	67	57	80
Needham	29A	1747	83	35	202	629	258	128	191	47	230	298	591	581	241	324
Dover	29B	156	5	3	14	37	13	20	12	3	11	18	29	32	16	24
Wellesley	30	870	38	16	86	237	104	188	86	20	77	106	125	260	74	95
Newton	31A	6852	301	131	812	2675	1210	3670	942	283	1077	682	768	3644	422	525
Weston	31B	228	12	5	27	73	29	56	26	5	28	23	23	71	19	28
Watertown	32A	2014	129	42	275	975	466	1337	252	44	212	201	168	1051	77	112
Waltham	32B	1456	90	35	181	565	227	416	164	30	117	137	118	668	70	104
Belmont	33	1784	172	56	217	975	324	479	147	40	115	140	140	622	53	80
Cambridge	34	16833	3793	614	2838	2323	4227	6284	2174	419	1355	1167	946	9527	588	848
Somerville	36	7151	2535	440	1536	3999	1017	1050	596	124	226	311	235	1467	172	363
Medford	38	6995	666	274	716	1641	545	653	434	81	216	381	295	1071	166	417
Arlington	39A	5590	391	128	466	1995	564	538	341	72	235	285	168	765	83	372
Lexington	39B	878	71	32	102	344	127	146	79	16	56	72	76	213	28	105
Winchester	40A	1212	88	38	108	294	110	128	72	15	39	57	46	198	21	76
Woburn	40B	669	48	20	69	181	50	62	35	8	21	32	27	87	13	46
Stoneham	41A	677	86	29	102	203	68	77	47	10	27	43	35	134	31	56
Reading	41B	474	27	15	47	94	51	35	23	5	14	22	20	61	17	33
Malden	42A	2140	797	272	421	1310	435	330	255	36	106	188	148	353	112	213
Melrose	42B	1214	238	112	271	883	201	185	133	26	61	128	86	209	66	133
Wakefield	42C	467	64	33	87	206	63	55	45	9	24	40	38	78	27	55
Everett	43A	2793	1611	778	578	1946	449	395	302	69	92	231	195	504	124	234
Saugus	43B	645	78	48	88	213	71	60	45	11	21	48	37	94	30	58
Chelsea	44	2105	1473	1822	571	1406	313	199	215	53	117	201	137	592	100	137
Winthrop	45	846	80	173	91	230	49	50	45	17	36	50	37	83	25	53
Revere	46	1434	323	284	324	878	66	134	133	22	48	150	85	179	70	119
Lynn	47A	3590	323	316	583	1559	325	286	273	50	136	249	186	537	171	352
Nahant	47B	102	8	5	13	26	8	7	5	1	3	9	6	15	5	11
Swampscott	47C	440	31	26	56	140	37	27	28	6	15	33	26	64	23	50
Marblehead	50	479	312	40	23	155	35	112	50	12	17	35	32	77	21	34
Salem-Easterly Road	51	1388	94	74	179	425	119	94	92	20	57	120	98	196	86	190
Salem Turnpike	52	1222	64	76	156	311	91	83	73	16	43	79	62	153	56	120
Newburyport Turnpike	53	1753	129	82	176	406	135	120	93	23	46	98	79	201	72	144
Andover and Lawrence Road	54	1320	84	30	161	321	106	116	83	21	56	118	88	215	71	143
Wilmington and Lowell Road	55	624	43	13	75	159	53	62	40	10	27	44	37	106	20	67
Billerica and Lowell Road	56	727	52	14	86	184	61	73	46	11	30	47	39	120	21	70
Carlisle and Groton Road	57	669	43	17	72	207	74	82	52	12	40	58	59	136	26	90
Concord-Fitchburg Road	59	1126	71	29	124	345	122	143	88	20	69	102	103	229	47	161
Kendall Green Leominster Road	60	656	35	16	74	204	73	102	58	13	47	65	57	190	38	63
Boston-Worcester Road	61	1340	71	32	163	413	157	257	143	31	150	150	181	379	121	191
Framingham Road	62	1129	60	28	138	347	140	195	120	30	109	166	184	339	120	178
Medfield and Milford Road	63	423	17	11	54	131	50	45	43	13	66	108	192	105	81	133
Boston-Providence Road	64	1823	70	55	232	534	224	197	189	57	319	558	1050	466	373	468
Stoughton Turnpike	65	1517	77	49	244	516	162	149	166	57	242	436	596	309	765	821
Randolph Turnpike	66	670	30	19	117	170	61	54	85	28	91	277	83	765	143	1431
Abington and Bridgewater Road	67	887	41	25	161	229	89	62	92	35	89	274	169	148	112	915
Plymouth Road	68	1065	50	30	190	276	107	75	109	41	106	316	200	179	135	1014
Plymouth Shore Road	69	915	45	35	162	306	96	85	93	31	81	207	171	169	231	1211
Total A		136108	17328	10746	19306	110210	44523	39877	45708	12135	23527	40686	5032	72487	21816	32488
Total B		19733	1388	673	2587	5659	1955	2104	1715	481	1687	3258	3480	4482	2539	7444
Total A and B		155833	20716	11419	51093	115049	46478	41983	47423	12616	25209	43956	28512	76969	24355	41732

Traffic Districts	No	25A	25B	25C	25E	27	28A	28B	29A	29B	30	31A	31B	32A	32B	33	34	36	38	39A	39B
Weymouth	25B	644																			
Hingham	25C	74	647																		
Hull	25E	50	160	60																	
Canton	27	32	86	15	2																
Dedham	28A	32	57	12	15	94															
Westwood	28B	9	13	4	5	18	337														
Needham	29A	46	44	17	25	79	834	137													
Dover	29B	5	4	1	3	6	21	6	223												
Wellesley	30	16	16	6	10	12	82	20	624	22											
Newton	31A	75	128	30	50	97	385	95	3220	104	769										
Weston	31B	4	7	2	5	4	13	4	64	4	289	435									
Watertown	32A	17	34	7	10	18	68	21	413	22	107	5820	59								
Waltham	32B	19	32	7	10	17	55	15	268	15	256	2831	227	1347							
Belmont	33	29	26	6	10	13	41	11	193	11	79	1203	41	1082	758						
Cambridge	34	166	199	139	160	73	201	53	431	27	235	3298	72	1271	563	1570					
Somerville	36	62	68	17	50	24	62	17	124	9	58	723	26	378	209	449	1709				
Medford	38	66	71	20	30	26	63	18	131	10	61	631	25	276	193	620	2914	1948			
Arlington	39A	59	70	17	25	21	63	18	270	16	114	1059	60	797	353	4983	4066	1739	2856		
Lexington	39B	18	22	7	10	7	19	6	76	5	31	248	17	136	98	382	444	190	389	1222	
Winchester	40A	14	18	5	10	5	14	4	53	4	23	187	11	92	62	219	511	188	310	1105	180
Woburn	40B	9	11	3	9	4	8	2	27	2	12	90	6	38	30	70	204	78	116	431	117
Stoneham	41A	11	13	4	5	5	10	3	22	2	10	88	4	33	27	56	262	112	517	273	68
Reading	41B	7	9	3	5	3	6	2	14	1	6	49	2	17	16	26	107	55	134	96	30
Malden	42A	36	42	12	20	16	33	10	77	6	34	289	13	108	83	162	1709	731	2450	634	116
Melrose	42B	27	32	8	5	10	23	7	54	4	25	188	9	67	55	121	704	346	1373	572	76
Wakefield	42C	11	14	4	5	5	10	3	24	2	11	80	4	27	24	41	205	97	282	156	47
Everett	43A	40	45	13	20	18	34	10	79	6	37	299	23	122	92	167	1763	1178	1935	393	92
Saugus	43B	11	13	4	5	4	8	3	19	2	9	61	7	22	19	41	193	91	167	84	26
Chelsea	44	29	31	8	15	12	27	8	55	3	23	244	13	79	58	88	1031	689	724	230	54
Winthrop	45	8	10	3	5	4	8	2	17	1	7	60	5	18	16	19	148	79	116	58	16
Revere	46	20	22	7	10	10	19	6	39	3	17	146	12	45	38	56	585	250	358	136	36
Lynn	47A	60	70	23	30	28	57	18	122	10	54	404	44	120	110	143	1053	451	621	312	96
Nahant	47B	2	2	1	3	1	2	1	4	0	2	12	2	4	3	4	19	12	19	10	3
Swampscott	47C	8	9	3	5	4	7	2	16	1	7	51	6	15	14	18	94	50	82	42	13
Marblehead	50	14	10	4	5	4	8	2	8	1	6	54	4	27	17	18	99	69	63	48	16
Salem-Easterly Road	51	31	38	14	5	16	29	9	64	6	29	192	31	56	55	63	308	155	255	149	50
Salem Turnpike	52	21	26	9	3	10	20	6	43	4	19	131	19	38	37	44	264	113	163	94	32
Newburyport Turnpike	53	27	33	10	3	11	21	7	49	4	23	147	21	50	47	85	398	170	303	173	58
Andover and Lawrence Road	54	32	40	12	4	13	27	9	59	5	22	195	29	65	62	89	392	168	362	280	98
Wilmington and Lowell Road	55	13	18	5	2	5	12	4	38	3	16	111	15	42	37	62	189	75	115	192	84
Billerica and Lowell Road	56	14	18	5	2	5	12	4	41	3	19	122	14	48	41	76	227	89	136	252	109
Carlisle and Groton Road	57	16	21	6	2	7	16	5	55	4	25	16	20	7	63	129	250	107	190	327	508
Concord-Fitchburg Road	59	29	38	12	4	13	29	9	96	8	44	[illegible]	37	124	—	197	404	173	305	483	605
Kendall Green Leominster Road	60	12	20	1	2	21	25	8	95	7	68	[illegible]	—	147	412	119	198	74	84	124	—
Boston-Worcester Road	61	31	51	14	4	54	77	23	316	21	582	1424	672	250	609	208	428	150	158	309	99
Framingham Road	62	32	34	13	4	46	104	29	490	[illegible]	1088	761	151	135	254	110	272	95	112	174	55
Medfield and Milford Road	63	18	21	7	2	34	174	145	147	9	32	145	7	34	28	22	92	32	37	36	12
Boston-Providence Road	64	71	82	28	9	149	[illegible]	847	688	38	143	[illegible]	28	[illegible]	116	88	[illegible]	116	147	145	48
Stoughton Turnpike	65	145	170	40	13	791	262	69	[illegible]	29	70	452	25	99	97	75	374	131	158	130	47
Randolph Turnpike	66	113	71	50	6	100	36	10	53	3	17	[illegible]	5	21	21	16	[illegible]	37	47	27	10
Abington and Bridgewater Road	67	255	1359	194	24	56	37	11	[illegible]	5	21	145	9	39	[illegible]	31	197	70	82	79	27
Plymouth Road	68	278	1256	207	28	70	44	14	66	6	26	178	11	48	48	38	238	85	101	97	34
Plymouth Shore Road	69	141	452	[illegible]	—	[illegible]	48	15	74	7	27	13	9	31	32	26	179	73	88	78	30
Total A		6577	7064	2508	2285	2512	[illegible]	645	[illegible]	954	5446	17041	2172	[illegible]	2298	[illegible]	[illegible]	1489	[illegible]	[illegible]	5642
Total B		1293	[illegible]	799	122	[illegible]	[illegible]	1226	2765	189	[illegible]	5831	1085	1491	2014	1496	[illegible]	1982	[illegible]	3197	1922
Total A and B		[illegible]	[illegible]	3307	2407	[illegible]	[illegible]	3171	6191	1143	7725	[illegible]	3257	[illegible]	14312	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8564

Traffic Districts	No	40A	40B	41A	41B	42A	42B	42C	43A	43B	44	45	46	47A	47B	47C
Woburn	40B	549														
Stoneham	41A	613	326													
Reading	41B	67	58	171												
Malden	42A	247	189	179	58											
Melrose	42B	229	88	780	105	1811										
Wakefield	42C	130	100	445	373	258	538									
Everett	43A	131	58	160	54	2904	1091	136								
Saugus	43B	30	20	137	80	317	363	342	227							
Chelsea	44	66	28	57	23	664	273	56	1750	66						
Winthrop	45	18	9	13	6	78	51	15	227	19	207					
Revere	46	49	25	56	23	737	223	51	1352	94	581	230				
Lynn	47A	111	67	205	157	726	1150	566	771	946	563	233	2198			
Nahant	47B	4	2	6	4	18	23	12	19	16	12	7	45	1682		
Swampscott	47C	15	10	24	19	81	93	53	76	65	49	28	180	4067	76	
Marblehead	50	13	30	19	17	79	102	48	78	30	58	40	147	2728	13	1254
Salem-Easterly Road	51	52	35	73	57	220	237	135	212	147	134	74	320	3255	88	1247
Salem Turnpike	52	33	21	50	39	154	200	104	172	130	109	52	242	2843	83	—
Newburyport Turnpike	53	62	44	157	114	365	422	320	326	1283	117	38	156	1087	27	107
Andover and Lawrence Road	54	148	123	231	691	172	249	364	166	158	76	25	80	481	14	62
Wilmington and Lowell Road	55	137	235	93	42	126	77	66	61	24	32	11	30	90	3	13
Billerica and Lowell Road	56	225	577	161	54	166	94	88	71	27	36	12	33	95	3	14
Carlisle and Groton Road	57	73	51	38	21	72	53	32	62	20	36	12	28	83	3	12
Concord-Fitchburg Road	59	113	80	63	35	121	90	54	105	34	62	22	48	149	5	22
Kendall Green Leominster Road	60	26	15	14	9	40	29	13	43	11	27	9	20	65	2	9
Boston-Worcester Road	61	65	36	28	18	84	62	29	91	24	53	18	41	136	4	18
Framingham Road	62	40	23	20	13	63	47	22	68	19	41	14	33	110	3	15
Medfield and Milford Road	63	9	6	7	4	20	15	8	21	6	15	5	12	39	1	5
Boston-Providence Road	64	35	21	28	17	72	58	27	81	22	61	20	46	148	5	20
Stoughton Turnpike	65	35	22	30	43	93	66	31	104	[illegible]	69	25	[illegible]	184	6	26
Randolph Turnpike	66	7	5	9	6	30	20	9	33	9	24	8	19	95	2	8
Abington and Bridgewater Road	67	21	14	16	11	48	[illegible]	17	52	16	34	12	27	89	3	12
Plymouth Road	68	26	17	20	14	59	48	22	63	20	42	14	33	112	3	15
Plymouth Shore Road	69	22	15	16	11	53	38	19	57	18	35	14	31	107	4	15
Total A		7776	4142	[illegible]	2724	1964	14280	5418	[illegible]	[illegible]	16077	[illegible]	11900	[illegible]	2256	[illegible]
Total B		1142	1370	[illegible]	1216	2037	1945	[illegible]	[illegible]	[illegible]	1061	475	1405	[illegible]	272	2874
Total A and B		8918	5512	[illegible]	3940	[illegible]	[illegible]	[illegible]	[illegible]	7085	19138	[illegible]	13313	[illegible]	2528	[illegible]

Traffic Districts	No	50	51	52	53	54	55	56	57	59	60	61	62	63	64	65	66	67	68	69
Salem-Easterly Road	51	—																		
Salem Turnpike	52	—	—																	
Newburyport Turnpike	53	—	—	—																
Andover and Lawrence Road	54	—	—	—	—															
Wilmington and Lowell Road	55	—	—	—	—	—														
Billerica and Lowell Road	56	7	65	3	81	—	—													
Carlisle and Groton Road	57	6	54	3	67	—	—	—												
Concord-Fitchburg Road	59	11	99	[illegible]	[illegible]	—	—	—	—											
Kendall Green Leominster Road	60	—	—	—	—	—	—	—	—	—										
Boston-Worcester Road	61	11	97	59	71	84	—	—	—	—	—									
Framingham Road	62	9	82	49	50	87	46	57	—	—	—	—								
Medfield and Milford Road	63	3	23	14	17	19	10	9	13	—	—	—	—							
Boston-Providence Road	64	11	95	58	65	81	41	39	55	—	92	68	173	—						
Stoughton Turnpike	65	14	122	73	74	97	45	44	54	—	96	62	161	216	—					
Randolph Turnpike	66	4	34	20	21	26	11	11	13	—	23	14	42	43	—	—				
Abington and Bridgewater Road	67	7	61	37	42	52	20	[illegible]	26	—	45	24	67	60	—	—	—			
Plymouth Road	68	10	84	51	55	69	[illegible]	26	32	—	62	31	86	77	—	—	—	—		
Plymouth Shore Road	69	9	76	46	48	58	23	23	29	—	55	[illegible]	76	68	—	—	—	—	—	
Total A		[illegible]	11071	[illegible]	[illegible]	7936	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7781	[illegible]	[illegible]	[illegible]	6113	6470	7274	[illegible]
Total B		[illegible]	892	539	687	573	222	421	[illegible]	266	573	[illegible]	985	572	778	1058	262	461	[illegible]	538
Total A and B		[illegible]	[illegible]	8472	10511	[illegible]	3682	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3251	13342	11491	6375	6931	[illegible]	[illegible]

Estimated traffic between each pair of gateway districts—totaled under "B" for 1965.

The Individual Items Represent Average Conditions, They Are Intended Not For Individual Application But For Use in Groups To Determine Traffic For a Highway Project.

Courtesy of Division of Metropolitan Planning.

Table III.—Estimate for 1965 of Number of Vehicles Passing Between Each Pair of Traffic Districts in Metropolitan Boston. There are 69 Traffic Districts including the 19 Gateway Districts. There are 2,273 Pairs of Districts for Each of Which the Traffic is Given.

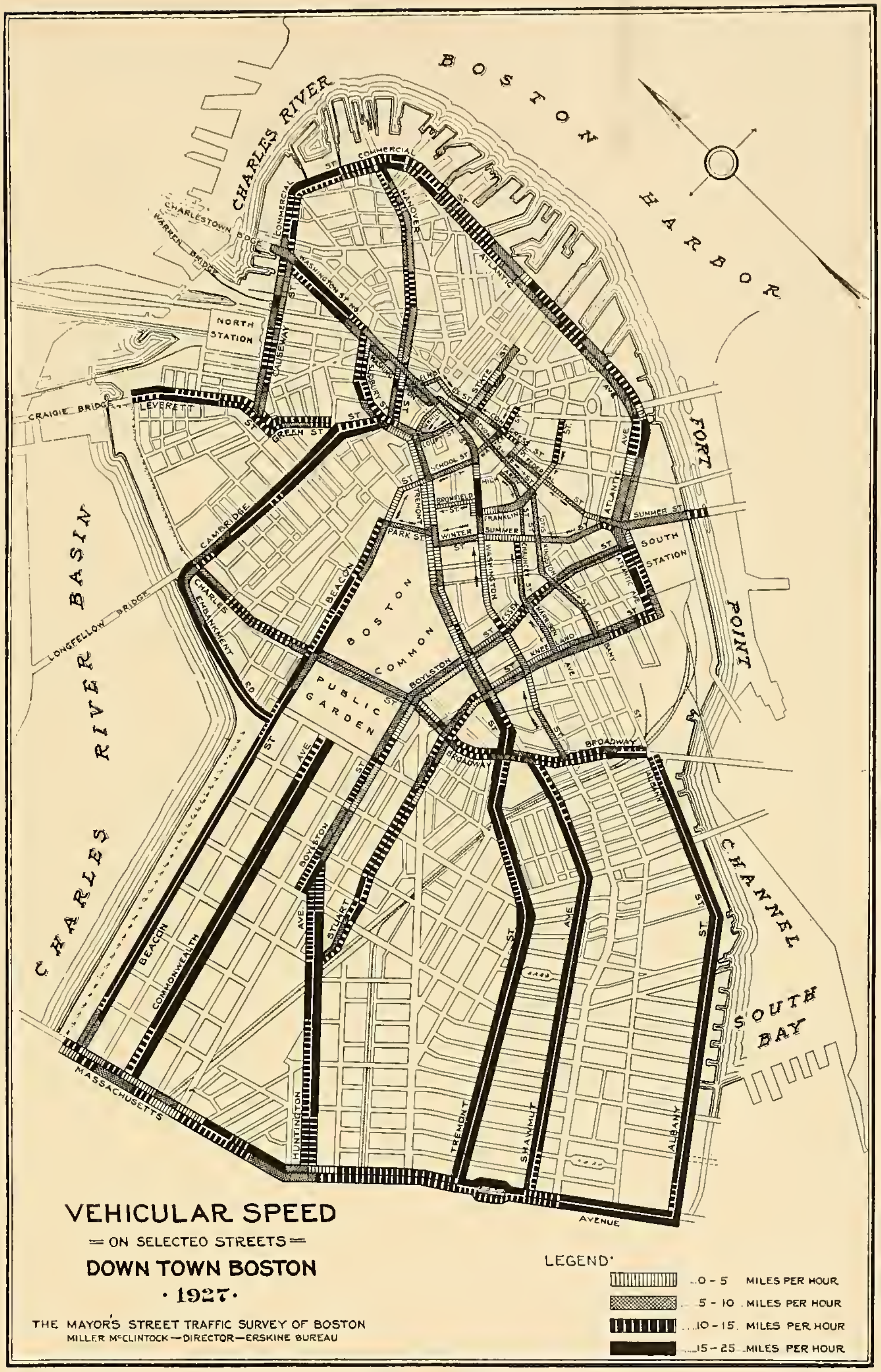


FIGURE 17

A speed of 5 to 10 miles an hour is shown for much of the central area.

general increase in the same proportion as the total vehicle registration for the metropolitan district, it is seen that in 1930 traffic will in general be 1.24 times the 1927 traffic; in 1935, 1.46 times; in 1950, 1.84 times; and in 1960, 2.02 times the 1927 traffic.

This indicates a general doubling of traffic by 1960. This will be an average yearly increase of but 3 per cent. But the major portion of this 100 per cent total increase will come within the next 15 or 20 years. In fact, it is estimated that one half the total will come by 1936.

The analysis of the origin and destination of traffic throughout the metropolitan district enabled an accurate determination to be made of the inter-district traffic between the 69 traffic districts within the metropolitan district. Not counting through traffic that had neither origin nor destination within the metropolitan district there were during a 24-hour day in 1927, 630,000 inter-district trips having an average length of 6.34 miles. This produced a total mileage for inter-district traffic of 4,000,000 vehicle miles.

The determination of the inter-district mileage as above was a fairly simple process using the data at hand. It seemed desirable to supplement this data with an estimate of the number of local trips within each traffic district and the total mileage of local trips. A careful analysis of the traffic data indicated a total of 650,000 local trips having an average length of 1.42 miles. This gives a total local trip mileage of 925,000 miles.

The local mileage, plus the inter-district mileage, amounted to 4,925,000 miles a day or 1,800,000,000 miles a year. The total number of local and inter-district one-way trips per day was 1,280,000. The average length of trip, for both inter-district and local, was 3.85 miles.

In 1927 there were 329,183 motor vehicles registered within the metropolitan district. The above total mileage gives an average daily mileage per registered motor vehicle of 15 miles. Fifteen miles per day is at the rate of 5,480 miles per year. This is not a high yearly average. Most estimates use 6,000 or 7,000 miles per year as a fair average. It is to be noted however, that the estimate is based on total mileage within the metropolitan district. It includes mileage of cars from without the district making trips into the district and it excludes all mileage made by cars owned within the district while on trips outside of the district.

Ten cents a mile is a fair average cost of motor vehicle operation when garage cost, interest, depreciation and insurance are included. In the Boston metropolitan district street vehicles in 1927 traveled a total of 4,925,000 miles a day, or 1,800,000,000 miles a year. This gives a daily street transportation cost to the owners of motor vehicles in the metropolitan district of $492,500 a day, or $180,000,000 a year. This is an impressive indication of the importance of the motor vehicle as a major element in the transportation system of the community.

Probably in every city in the United States, with the single exception of New York City, the private automobile carries more passengers per day than the street car, motor bus and rapid transit train combined. In the Boston metropolitan district there is an average of 1,280,000 vehicle trips per day and an average of 1.8 persons per vehicle. This gives a total of 450 vehicle rides per capita per year. For large cities other than those having rapid transit the number of rides per capita for all mass transportation facilities has steadily declined since 1920 and now ranges between 200 and 300. Boston, Philadelphia and Chicago, with the aid of rapid transit, have maintained the riding habit for mass transportation facilities at between 300 and 400 rides per capita.

It is true, however, that the motor vehicle in all the larger cities carries a relatively small proportion of the daily number of passengers moving to and from the central business district. In most of these cities only from 18 per cent to 40 per cent of the passengers entering the central area are transported by motor vehicles.

Of the 1,656,953 persons entering the central district of Boston on an average day in 1927 25.7 per cent came by vehicle. Omitting those entering over the steam railroads or by foot those entering by vehicle amount to 34.2 per cent of the total. The street car or rapid transit train serves this movement to and from the central district exceptionally well and much more economically in its use of street space than the

private automobile. For cross-town travel and travel from one suburban center to another the fixed and expensive transit lines are in general not nearly as quick or convenient as the automobile. The more widely a city is spread out the less practical it is to provide quick and convenient mass transportation except along a few transit routes radiating from main centers. In all American cities, with the exception of New York, the motor vehicle is the chief means of cross-town, inter-neighborhood and inter-subcenter transportation.

In attempting a traffic forecast there is no thought that it can be anything more than a scientific appraisal of probability on the basis of past experience and present facts. It is the determination of what is most likely to happen and not a claim as to what will happen. Any estimate of traffic might be upset by a radical change in the art of urban transportation such as that produced, for example, by the introduction of the motor vehicle. Even as to this radical change, however, it should be remembered that it was many years after the first automobile was operated before it produced a revolutionary change in traffic conditions. There will doubtless be radical changes in transportation methods in the future, but when they come their full effect will not be in evidence for a period of years. In so far as the place of the automobile in city transportation is concerned it appears very unlikely that any such changes will seriously affect the reliability of traffic estimates during the next fifteen or twenty years.

All traffic estimates should be conservatively made. They are intended for use in designing bridges, roadways and other structures where economy in initial capital outlay is of great importance. The design of a structure the life of which is comparatively short or which can be enlarged or paralleled without extraordinary cost in case it becomes inadequate may properly be based on a very conservative estimate of traffic increase. On the other hand, the taking of land for highway purposes should be based on a most liberal estimate of traffic increase. The highway, after being solidly improved with buildings, will be so costly to widen that it should be laid out to take care of the maximum estimated traffic for a long term of years. A liberal percentage may well be added to the traffic forecasts where they are to be used to determine the amount of land to be taken for highway purposes. There are few public open spaces now existing that time and change have not put to good use even though the purpose for which they were originally set aside has long ceased.

The traffic study furnishes the quantitative basis for thoroughfare planning. All planning problems must, of course, be studied qualitatively as well as quantitatively. But the most brilliantly conceived design will prove disappointing unless its parts are functionally adapted and proportioned to the kinds and amounts of service required of them.

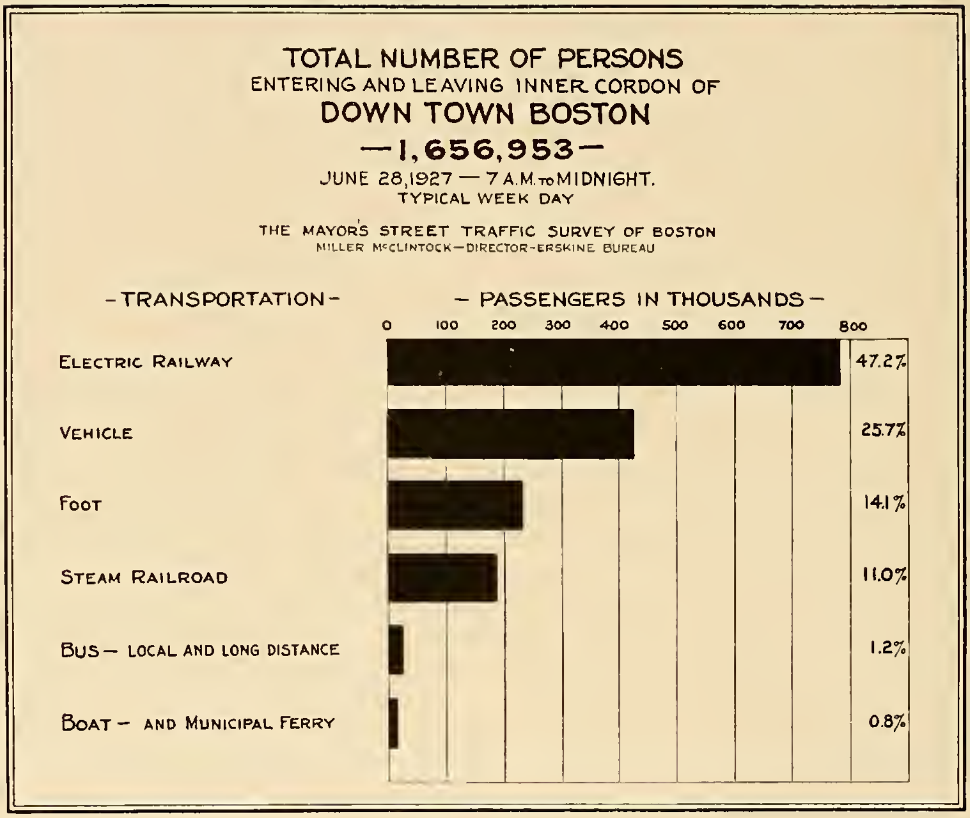

TOTAL NUMBER OF PERSONS
ENTERING AND LEAVING INNER CORDON OF
DOWN TOWN BOSTON
—1,656,953—
JUNE 28,1927 — 7 A.M. TO MIDNIGHT.
TYPICAL WEEK DAY
THE MAYOR'S STREET TRAFFIC SURVEY OF BOSTON
MILLER McCLINTOCK—DIRECTOR-ERSKINE BUREAU
-TRANSPORTATION-
— PASSENGERS IN THOUSANDS —
0
100
200
300
400
500
600
700
800
ELECTRIC RAILWAY
47.2%
VEHICLE
25.7%
FOOT
14.1%
STEAM RAILROAD
11.0%
BUS — LOCAL AND LONG DISTANCE
1.2%
BOAT — AND MUNICIPAL FERRY
0.8%

FIGURE 18

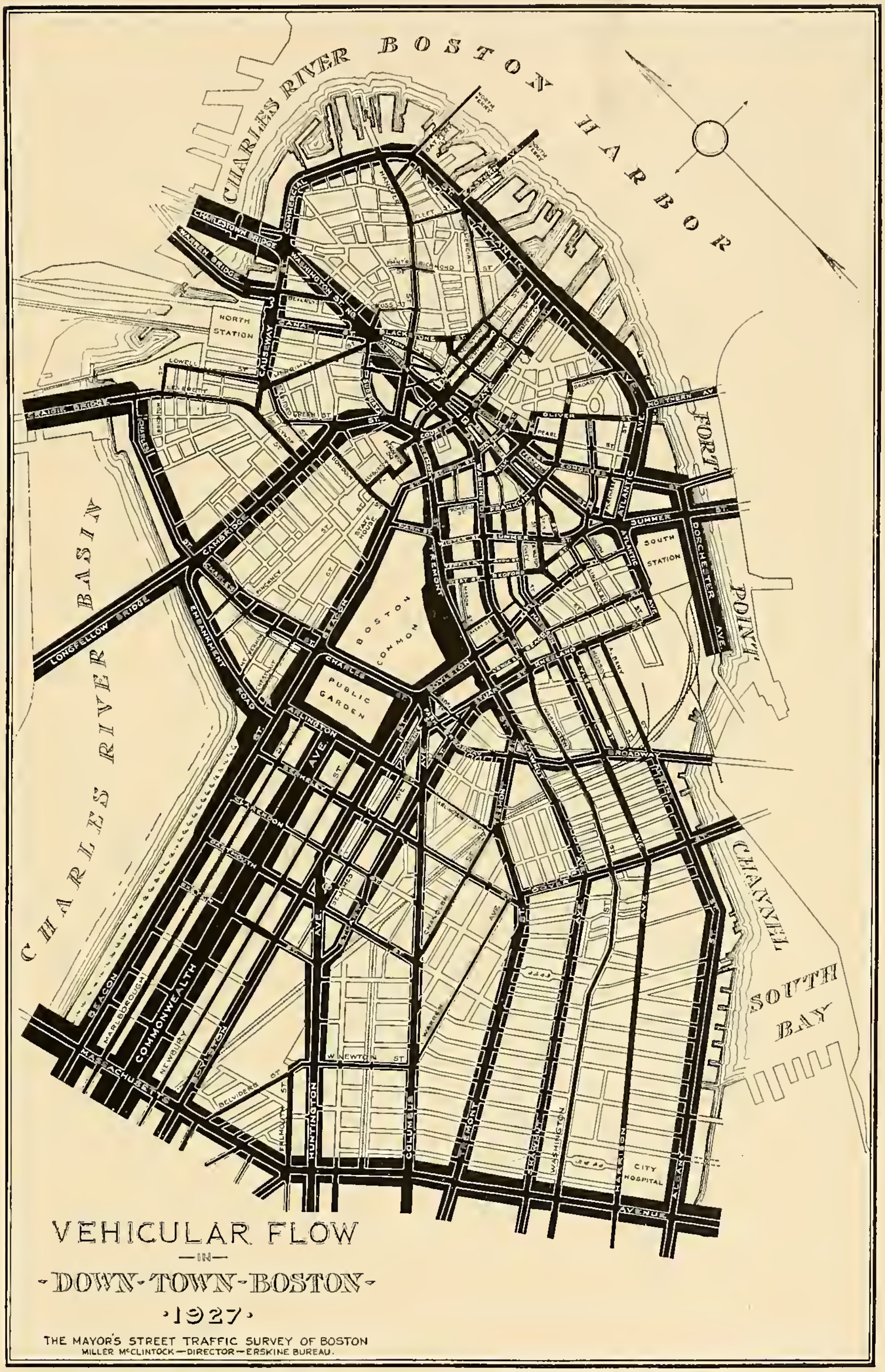

VEHICULAR FLOW
—IN—
-DOWN-TOWN-BOSTON-
·1927·
THE MAYOR'S STREET TRAFFIC SURVEY OF BOSTON
MILLER McCLINTOCK—DIRECTOR—ERSKINE BUREAU.
CHARLES RIVER
BOSTON HARBOR
CHARLES RIVER BASIN
FORT POINT CHANNEL
SOUTH BAY
BOSTON COMMON
PUBLIC GARDEN
NORTH STATION
SOUTH STATION
CITY HOSPITAL
LONGFELLOW BRIDGE
CRAIGIE BRIDGE
CHARLESTOWN BRIDGE
WARREN BRIDGE
COMMONWEALTH
BEACON
MARLBOROUGH
NEWBURY
BOYLSTON
MASSACHUSETTS
HUNTINGTON AVE.
COLUMBUS
TREMONT
WASHINGTON
ATLANTIC AVE.
DORCHESTER AVE.
SUMMER
ARLINGTON
CAMBRIDGE
CHARLES
EMBANKMENT ROAD

Figure 19

2. Central District

Supplementing the studies of the Mayor's Street Traffic Survey a particularly complete and detailed analysis was made of the origin, destination, volume and movement of traffic in the central district. The central district was divided into seven subdistricts as shown in Fig. 21. Both origin and destination and volume counts were made at all the traffic gateways and at many points inside the district. Flow charts showing origin and destination of traffic were prepared for the more important points. These are shown in Figs. 29–40. Other charts were prepared to show diagrammatically the amount of traffic moving from each gateway to or from each of the seven subdistricts within the central district (Figs. 23–28). Complete details of this distribution of gateway traffic within the central district are shown in Tables VI, VII and VIII.

The percentage distribution of traffic to and from the central district going to each of the traffic subsections in the central district is as follows:

Business section	55.0%
Market section	9.8%
Atlantic Avenue section . .	9.8%
Commercial section . . .	0.9%
North Station section . .	5.7%
Haymarket section . . .	6.7%
Beacon Hill section . . .	12.1%

On a typical 10-hour day in 1927 approximately 100,000 vehicles made trips to or from central Boston. (See Table II.) This does not include the vehicles that passed through central Boston, but had both an origin and a destination outside of central Boston. Of the vehicles to and from central Boston approximately 8 per cent had an origin or destination outside of the metropolitan district, 11 per cent had an origin or destination in South Boston, 14.5 per cent in the South End or Back Bay, 9 per cent in Cambridge, 4.6 per cent in Somerville, 5.6 per cent in Brookline, 3.2 per cent in Brighton, 4.1 per cent in Charlestown, and from $1\frac{1}{2}$ to 3 per cent in each of the following: Jamaica Plain, Quincy, Newton, Medford, Malden, Everett, Chelsea, Lynn. An aggregate of 42.5 per cent were from points outside of municipal Boston but from within the metropolitan district.

Of the total number of vehicles having an origin or destination within the central district 31.2 per cent are commercial vehicles. This is practically the same percentage of commercial vehicles as that shown by the inner cordon count, which included vehicles passing through the central district as well as those having an origin or destination within the central district. The inner cordon count showed 31.6 per cent of commercial vehicles.

Of the 164,218 vehicles entering the central district on a typical 10-hour day in 1927, only 106,229 or 65 per cent had an origin or a destination within the central district itself (Table VIII) 22,030 were passing through some portion of the central district to reach the Back Bay or South End district, and 35,249 had neither an origin nor a destination either within the central district or within the Back Bay-South End district.

While 35 per cent of the traffic entering the central district merely passes through the district a considerable proportion of this number use streets by-passing the centers of greatest congestion. There is a large traffic over the Charles River Dam that proceeds by way of Charles Street and the Embankment Road to the Back Bay and other points outside the central district. There is also a heavy traffic over the Charlestown and Warren Bridges that uses Commercial Street and Atlantic Avenue to points in South Boston and beyond. An analysis of traffic using Tremont, Washington, Devonshire and Congress Streets at points near the center of the central district indicate that 20 per cent of the vehicles using these streets have neither an origin nor a destination within the central district.

A first consideration in highway planning for the central district is, therefore, the provision of facilities that will serve to take out of these congested centers approximately 20 per cent of the present traffic that does not properly belong there.

Of the 164,218 cars counted in the inner cordon check 58,690 or 35.7 per cent had an origin or a

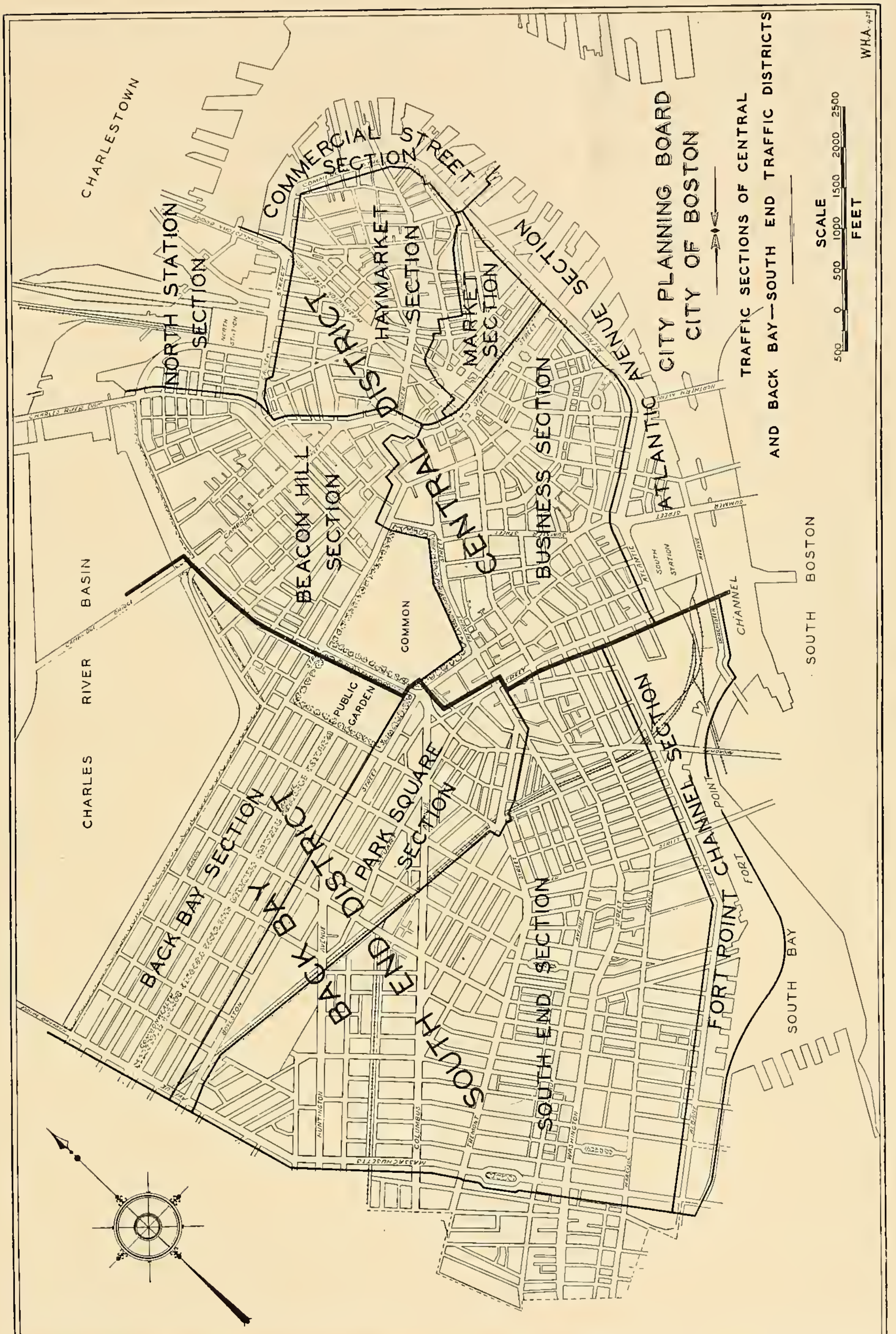

CITY PLANNING BOARD
CITY OF BOSTON
TRAFFIC SECTIONS OF CENTRAL
AND BACK BAY—SOUTH END TRAFFIC DISTRICTS
SCALE
500 0 500 1000 1500 2000 2500
FEET
CHARLESTOWN
COMMERCIAL STREET SECTION
NORTH STATION SECTION
HAYMARKET SECTION
MARKET SECTION
CENTRAL DISTRICT
BEACON HILL SECTION
BUSINESS SECTION
ATLANTIC AVENUE SECTION
COMMON
PUBLIC GARDEN
CHARLES RIVER BASIN
BACK BAY SECTION
BACK BAY DISTRICT
PARK SQUARE SECTION
SOUTH END DISTRICT
SOUTH END SECTION
FORT POINT CHANNEL SECTION
SOUTH BOSTON
SOUTH BAY
CHANNEL
SOUTH STATION
NORTH STATION
WHA

FIGURE 21

destination within the business section of the central district. Of the 106,939 vehicles having an origin or destination within the central district on an average 10-hour day in 1927, 55 per cent were going to or from the business section of the central district. The business section includes the main retail, office and financial and wholesale portions of the central district. (See Table IX.)

Fig. 23 shows in diagrammatic form the traffic from each gateway of the inner cordon to the business section. A striking feature of this diagram is the large amount of traffic entering from the west and particularly from Beacon, Boylston and Stuart Streets. Forty per cent of the total traffic to and from the business section enters from these three gateways. Only 15 per cent of the traffic comes from the northern gateways including the ferries, the Charlestown and Warren Bridges, and the Charles River Dam. 22.8 per cent of the traffic to the business section is commercial traffic. This is a lower percentage of commercial traffic than to any other section of the central district. The average for the central district is 31.2 per cent.

Table XXI analyzes the traffic over the Charlestown and Warren Bridges showing the traffic between different traffic districts or parts of the metropolitan district. 12,451 vehicles out of a total of 25,199 are passing between some point in the North Sector and some point in the central district. 4,181 vehicles are passing between some point in the North Sector and some point in the South Sector; 1,427 of these being to or from South Boston. 3,203 of the vehicles passing over these bridges are going between points in the Northwest Sector and the central district.

An origin and destination check made of traffic passing through Atlantic Avenue at a point near State Street shows a total of 14,500 vehicles, of which 4,600, or almost 32 per cent, have neither an origin nor a destination within the central district. Of this through traffic two thirds consists of vehicles passing between the North Sector and the South Sector. Twenty per cent of the vehicles at this point had both an origin and a destination within the central district and about the same number were travelling between some point in the central district and some point in the South Sector. 2,100 vehicles, or 14.5 per cent of the total, were travelling between points in the central district and points in the North Sector. (See Origin and Destination Count 21 and Traffic Flow Diagram, Fig. 38.)

Fig. 39 shows in diagrammatic form the origin and destination of traffic passing through Tremont Street at a point between Winter Street and Temple Place. Of the traffic passing this point, a very large proportion is moving to or from points in the Back Bay, the South End and areas to the west and south. A considerable amount of the traffic at this point passes over the Charlestown Bridge and a comparatively small amount over the Charles River Dam and the Longfellow Bridge.

An analysis of the origin and destination check on Tremont Street, between Winter Street and Temple Place (see Appendix, page 213), shows that of the 13,600 cars counted 25 per cent, or 3,380, had neither an origin nor a destination within the central district. About two-thirds of this through traffic was to or from points in the Back Bay and South End, and about two thirds of the through traffic had an origin or destination in the North Sector, the area that is normally reached over the Charlestown and Warren bridges.

An origin and destination check made at a point on Washington Street, between Temple Place and Winter Street, shows that less than 6 per cent of the traffic at this point on Washington Street has neither an origin nor a destination within the central district. Nineteen per cent of the cars found at this point had both their origin and their destination within the central district. Eighteen per cent were moving between the central district and the Back Bay and South End. Twenty-seven per cent were moving between the central district and the West Sector and 21 per cent between the central district and the South and Southwest Sectors. Only $3\frac{1}{2}$ per cent were moving between the central district and the North and Northwest Sectors. (See Origin and Destination Count 25 and Traffic Flow Diagram, Fig. 40.)

The studies of the Mayor's Street Traffic Survey of half hourly fluctuation and accumu-

lation of traffic entering and leaving the inner cordon of Downtown Boston shows for most hours of the day a fairly equal volume of in and out traffic. During the morning rush hour there is, of course, a preponderance of vehicles moving in, and during the afternoon rush hour a preponderance of vehicles moving out, but in no half hour is the traffic in either direction double that in the opposite direction. In the afternoon half-hour peak when the greatest divergence between outbound and inbound vehicles occurs there were 6,716 outbound vehicles and 4,042 inbound vehicles. In the morning half-hour peak there were 5,478 inbound vehicles and 3,250 outbound. The advantage to be gained from ability to reverse the direction of one or more traffic lanes morning and afternoon is therefore somewhat limited and there are few locations in the Downtown area where it is wise to design roadways with the opportunity for such reversal in view.

Table IV.— Inner Cordon Traffic, 1927

Shown in Amounts and Percentages

10-Hour and 17-Hour Counts — Summer, 1927

Cordon point	Number passenger		Number commercial		Per cent commercial		Total vehicles		Per cent total of Cordon total	
	10 hours	17 hours	10 hours	17 hours	10 hours	17 hours	10 hours	17 hours	10 hours	17 hours
Charlestown Bridge	11,156	20,131	5,468	6,511	32.9	24.4	16,624	26,649	10.15	11.61
Warren Avenue Bridge	4,291	7,364	4,197	4,848	49.4	39.6	8,488	12,212	5.18	5.30
Charles River Dam	9,382	14,239	5,836	6,597	38.3	31.6	15,218	20,836	9.36	9.07
Longfellow Bridge	8,100	11,493	3,000	3,492	29.0	23.3	11,100	14,985	6.78	6.22
Embankment Road	9,388	14,090	—	42	00.0	00.02	9,388	14,132	5.70	6.12
Charles Street	6,920	10,878	4,253	4,987	38.0	31.4	11,173	15,865	6.87	6.92
Beacon Street	9,801	13,162	1,865	1,980	15.9	13.3	11,666	15,142	7.16	6.55
Boylston Street	12,604	18,813	1,401	1,970	10.0	9.4	14,005	20,783	8.55	9.58
Stuart Street	9,269	12,565	2,223	2,442	19.3	16.2	11,492	15,007	7.00	6.52
Tremont Street	5,012	9,280	1,397	1,846	21.8	16.6	6,409	11,126	3.94	4.83
Washington Street	1,978	3,004	781	881	28.3	22.7	2,759	3,885	1.63	1.67
Harrison Avenue	3,728	5,205	1,948	2,178	34.3	29.5	5,676	7,383	3.49	3.22
Albany, Hudson and Tyler Streets	2,806	4,420	3,181	3,611	53.1	44.9	5,987	8,031	3.64	3.50
Dorchester Avenue	8,498	13,036	3,776	4,512	30.7	25.7	12,274	17,548	7.49	7.65
Summer Street	5,802	7,277	3,456	3,817	37.3	33.4	9,258	11,094	5.64	4.82
Congress Street Bridge	908	1,062	3,604	4,008	79.8	70.1	4,512	5,070	2.75	2.21
Northern Avenue	811	946	4,217	4,511	83.9	17.5	5,028	5,457	3.07	2.36
South Ferry	1,301	1,801	988	1,165	43.2	39.3	2,289	2,966	1.40	1.29
North Ferry	419	692	453	519	52.0	43.9	872	1,211	0.53	0.53
Totals	112,174	169,458	52,044	59,917	31.6	26.2	164,218	229,373	100.0	100.0

Table V.— Comparative Counts of Vehicular Traffic Entering and Leaving Downtown Boston 8 a. m. to 6 p. m., July 1, 1924, and July 1, 1926

(Made by the Boston City Planning Board and the Boston Chamber of Commerce)

	Location of traffic counts in 1924 and 1926	July 1, 1924			July 1, 1926		
		Direction			Direction		
		In	Out	Total	In	Out	Total
1	Beacon Street	7,551	5,764	23,315	8,152	5,278	13,430
1A	Chestnut Street	*	*	*	115	227	342
2	Mt. Vernon Street	158	870	1,028	518	1,769	2,287
2A	Pinckney Street	*	*	*	130	175	305
2B	Revere Street	*	*	*	62	178	240
3	Embankment Road	2,116	2,735	4,851	3,177	4,316	7,493
4	Cambridge Bridge	3,280	3,174	6,454	6,721	7,717	14,438
5	Charles River Dam (Craigie Bridge)	4,335	3,969	8,304	5,528	5,836	11,364
6	Warren Bridge	4,111	4,788	8,899	5,002	4,350	9,352
7	Charlestown Bridge	5,923	6,940	12,863	7,308	9,246	16,554
8	North Ferry	956	1,074	2,030	609	740	1,349
9	South Ferry	534	578	1,112	1,011	1,043	2,054
10	Northern Avenue Bridge	2,678	2,691	5,369	2,538	2,621	5,159
11	Congress Street Bridge	1,968	1,489	3,457	2,492	1,882	4,374
12	Summer Street Bridge	4,199	4,253	8,452	4,952	4,599	9,551
13	Dorchester Avenue Bridge	4,488	4,875	9,363	5,848	6,260	12,108
14	Albany Street	O.B.O.	2,820	2,820	O.B.O.	3,075	3,075
15 16	Hudson Street Tyler Street	2,622	I.B.O.	2,622	3,004	I.B.O.	3,004
17	Harrison Avenue	1,525	2,648	4,173	1,985	4,051	6,036
18	Washington Street	1,587	554	2,141	1,980	580	2,560
19	Tremont Street	4,707	3,286	7,993	4,889	3,772	8,661
20	Stuart Street	6,564	5,851	12,415	5,397	5,911	11,308
21	Park Square	4,883	4,532	9,415	5,055	4,263	9,318
22	Boylston Street	6,035	5,903	11,938	7,461	7,697	15,158
	Totals	70,220	68,794	139,014	83,934	85,586	169,520

Note.— Counts include passenger automobiles, motor trucks and horse-drawn vehicles. * No count. I.B.O. Inbound only. O.B.O. Outbound only.

Table VI.— Summary of Traffic 1927 (10-Hour Day) Inner Cordon

Vehicles having an Origin or Destination within the Traffic Sections of Boston Proper

Passenger Cars

Inner Cordon points	Boston Proper														Total Outside Boston Proper	Grand Total
	Central District								Back Bay-South End District					Central District and Back Bay-South End District Total		
	Business section	Market section	Atlantic Avenue section	Commercial Street section	North Station section	Haymarket section	Beacon Hill section	Central District Total	Back Bay section	Park Square section	South End section	Fort Point Channel section	Back Bay-South End District Total			
Charlestown Bridge	2,971	714	1,047	109	834	1,017	273	6,965	95	347	338	10	790	7,755	3,401	11,156
Warren Bridge	432	209	181	28	488	348	613	2,299	28	334	83	—	445	2,744	1,547	4,291
Charles River Dam	2,393	272	212	30	363	272	1,346	4,888	529	1,634	439	—	2,602	7,490	1,892	9,382
Longfellow Bridge	2,852	420	262	35	245	665	1,172	5,651	140	787	210	—	1,137	6,788	1,312	8,100
Embankment Road	1,892	204	37	19	340	316	1,639	4,447	946	1,701	680	—	3,327	7,774	1,614	9,388
Charles Street	1,180	220	120	—	240	180	1,380	3,320	720	1,040	360	—	2,120	5,440	1,480	6,920
Beacon Street	5,396	394	162	—	239	401	2,300	8,892	69	200	46	—	315	9,207	594	9,801
Boylston Street	9,079	380	750	11	149	162	268	10,799	129	604	208	11	952	11,751	853	12,604
Stuart Street	6,363	126	570	11	169	211	84	7,534	63	613	530	21	1,227	8,761	508	9,269
Tremont Street	1,978	116	158	5	168	105	231	2,761	105	615	1,016	—	1,736	4,497	515	5,012
Washington Street	1,082	57	92	—	53	110	35	1,429	22	57	272	4	355	1,784	194	1,978
Harrison Avenue	2,380	84	253	14	84	155	70	3,040	42	28	309	—	379	3,419	309	3,728
Albany, Hudson and Tyler Streets	1,793	63	190	11	63	116	53	2,289	32	21	232	—	285	2,574	232	2,806
Dorchester Avenue	3,418	431	816	15	154	277	123	5,234	46	169	277	—	492	5,726	2,772	8,498
Summer Street Bridge	1,466	121	589	60	106	15	121	2,478	60	121	121	—	302	2,780	3,022	5,802
Congress Street Bridge	198	26	95	—	4	21	17	361	8	34	34	—	76	437	471	908
Northern Avenue	120	13	106	53	40	13	53	398	—	27	—	—	27	425	386	811
South Ferry	276	61	92	6	16	76	16	543	6	35	73	—	114	657	644	1,301
North Ferry	56	19	20	6	10	46	16	173	3	12	14	—	29	202	217	419
Totals	45,325	3,930	5,752	413	3,765	4,506	9,810	73,501	3,043	8,379	5,242	46	16,710	90,211	21,963	112,174

Table VII.— Summary of Traffic 1927 (10-Hour Day) Inner Cordon

Vehicles having an Origin or Destination within the Traffic Sections of Boston Proper

Commercial Cars

Inner Cordon points	Boston Proper														Total Outside Boston Proper	Grand total
	Central District								Back Bay-South End District					Central District and Back Bay-South End District total		
	Business section	Market section	Atlantic Avenue section	Commercial Street section	North Station section	Haymarket section	Beacon Hill section	Central District total	Back Bay section	Park Square section	South End section	Fort Point Channel section	Back Bay-South End District total			
Charlestown Bridge	1,173	824	626	71	237	464	106	3,501	15	71	171	—	257	3,758	1,710	5,468
Warren Bridge	479	669	299	106	352	458	689	3,052	18	35	141	—	194	3,246	951	4,197
Charles River Dam	718	628	440	46	486	370	579	3,267	92	231	393	—	716	3,983	1,853	5,836
Longfellow Bridge	928	522	58	58	101	101	362	2,130	58	145	145	—	348	2,478	522	3,000
Embankment Road	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Charles Street	266	205	64	33	141	205	702	1,616	421	250	546	—	1,217	2,833	1,420	4,253
Beacon Street	687	410	82	—	41	133	287	1,640	20	10	51	—	81	1,721	144	1,865
Boylston Street	805	83	104	5	31	31	10	1,069	—	—	31	—	31	1,100	301	1,401
Stuart Street	1,102	171	342	—	—	95	19	1,729	—	247	38	38	323	2,052	171	2,223
Tremont Street	271	142	100	—	57	43	29	642	29	142	442	—	613	1,255	142	1,397
Washington Street	427	75	26	4	26	35	—	593	—	17	70	4	91	684	97	781
Harrison Avenue	1,056	235	176	—	35	59	47	1,608	23	12	141	—	176	1,784	164	1,948
Albany, Hudson and Tyler Streets	1,722	383	293	—	57	96	76	2,627	38	19	229	—	286	2,913	268	3,181
Dorchester Avenue	928	608	464	64	256	176	—	2,496	16	—	160	—	176	2,672	1,104	3,776
Summer Street Bridge	912	256	368	16	48	48	48	1,696	32	16	192	32	272	1,968	1,488	3,456
Congress Street Bridge	905	211	423	30	287	75	60	1,991	23	98	226	15	362	2,353	1,251	3,604
Northern Avenue	811	850	803	78	125	187	132	2,986	—	31	62	—	93	3,079	1,138	4,217
South Ferry	132	240	103	18	19	43	7	562	6	14	36	—	56	618	370	988
North Ferry	43	64	25	28	16	43	14	233	3	5	17	3	28	261	192	453
Totals	13,365	6,576	4,796	557	2,315	2,662	3,167	33,438	794	1,343	3,091	92	5,320	38,758	13,286	52,044

Table VIII.— Summary of Traffic 1927 (10-Hour Day) Inner Cordon

Vehicles having an Origin or Destination within the Traffic Sections of Boston Proper

Passenger and Commercial Cars

Inner Cordon points	Boston Proper														Total Outside Boston Proper	Grand total
	Central District								Back Bay-South End District					Central District and Back Bay-South End District total		
	Business section	Market section	Atlantic Avenue section	Commercial Street section	North Station section	Haymarket section	Beacon Hill section	Central District total	Back Bay section	Park Square section	South End section	Fort Point Channel section	Back Bay-South End District total			
Charlestown Bridge	4,144	1,538	1,673	180	1,071	1,481	379	10,466	110	418	509	10	1,047	11,513	5,111	16,624
Warren Bridge	911	878	480	134	840	806	1,302	5,351	46	369	224	—	639	5,990	2,498	8,488
Charles River Dam	3,111	900	652	76	849	642	1,925	8,155	621	1,865	832	—	3,318	11,473	3,745	15,218
Longfellow Bridge	3,780	942	320	93	346	766	1,534	7,781	198	932	355	—	1,485	9,266	1,834	11,100
Embankment Road	1,892	204	37	19	340	316	1,639	4,447	946	1,701	680	—	3,327	7,774	1,614	9,388
Charles Street	1,446	425	184	33	381	385	2,082	4,936	1,141	1,290	906	—	3,337	8,273	2,900	11,173
Beacon Street	6,083	804	244	—	280	534	2,587	10,532	89	210	97	—	396	10,928	738	11,666
Boylston Street	9,884	463	854	16	180	193	278	11,868	129	604	239	11	983	12,851	1,154	14,005
Stuart Street	7,465	297	912	11	169	306	103	9,263	63	860	568	59	1,550	10,813	679	11,492
Tremont Street	2,249	258	258	5	225	148	260	3,403	134	757	1,458	—	2,349	5,752	657	6,409
Washington Street	1,509	132	118	4	79	145	35	2,022	22	74	342	8	446	2,468	291	2,759
Harrison Avenue	3,436	319	429	14	119	214	117	4,648	65	40	450	—	555	5,203	473	5,676
Albany, Hudson and Tyler Streets	3,515	446	483	11	120	212	129	4,916	70	40	461	—	571	5,487	500	5,987
Dorchester Avenue	4,346	1,039	1,280	79	410	453	123	7,730	62	169	437	—	668	8,398	3,876	12,274
Summer Street Bridge	2,378	377	957	76	154	63	169	4,174	92	137	313	32	574	4,748	4,510	9,258
Congress Street Bridge	1,103	237	518	30	291	96	77	2,352	31	132	260	15	438	2,790	1,722	4,512
Northern Avenue	931	863	909	131	165	200	185	3,384	—	58	62	—	120	3,504	1,524	5,028
South Ferry	408	301	195	24	35	119	23	1,105	12	49	109	—	170	1,275	1,014	2,289
North Ferry	99	83	45	34	26	89	30	406	6	17	31	3	57	463	409	872
Totals	58,690	10,506	10,548	970	6,080	7,168	12,977	106,939	3,837	9,722	8,333	138	22,030	128,969	35,249	164,218

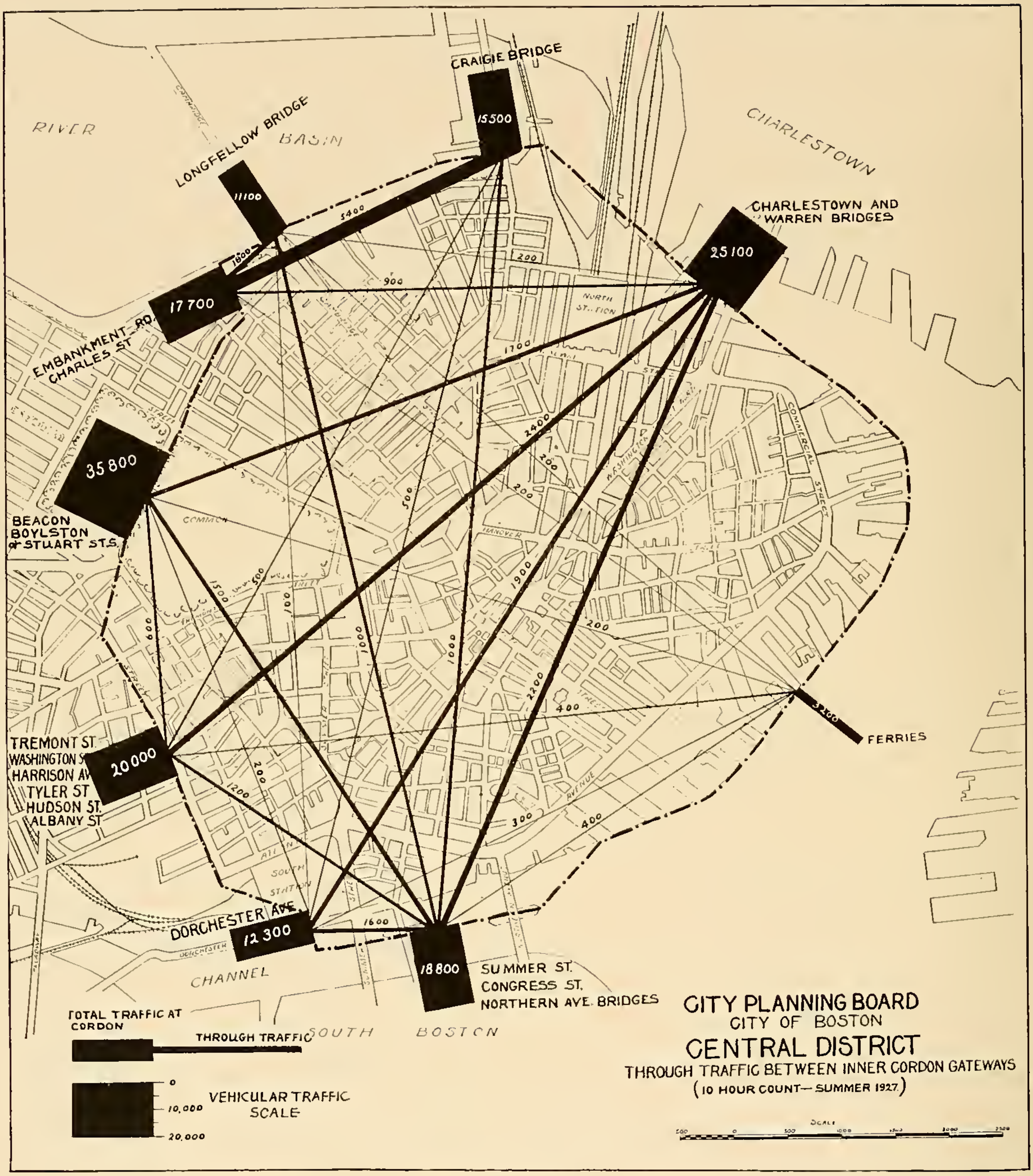


Figure 22

The above diagram shows the through traffic passing between the inner cordon gateways. Of the 25,100 vehicles crossing the Charlestown and Warren Bridges 9,300, or 37 per cent, have neither an origin nor a destination within the Central District. Of this 37 per cent 2,200 proceed across Central Boston to the South Boston bridges and 4,300 to Park Square, the South End and other points to the south.

Table IX.— Distribution of Inner Cordon Traffic
Business Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	4,144	24.90	2,971	1,173	28.40
Warren Bridge	8,488	911	10.70	432	479	52.50
Charles River Dam	15,218	3,111	21.00	2,393	718	23.00
Longfellow Bridge	11,100	3,780	34.00	2,852	928	24.50
Embankment Road	9,388	1,892	20.20	1,892	—	—
Charles Street	11,173	1,446	13.00	1,180	266	18.40
Beacon Street	11,666	6,083	52.20	5,396	687	11.30
Boylston Street	14,005	9,884	70.50	9,079	805	8.15
Stuart Street	11,492	7,465	65.00	6,363	1,102	14.80
Tremont Street	6,409	2,249	35.00	1,987	271	12.05
Washington Street	2,759	1,509	54.60	1,082	427	28.20
Harrison Avenue	5,676	3,436	60.50	2,380	1,056	30.40
Albany, Hudson and Tyler Streets	5,987	3,515	58.70	1,793	1,722	49.20
Dorchester Avenue	12,274	4,346	35.40	3,418	928	21.40
Summer Street	9,258	2,378	25.60	1,466	912	38.40
Congress Street Bridge	4,512	1,103	24.40	198	905	82.20
Northern Avenue	5,028	931	18.60	120	811	87.20
South Ferry	2,289	408	17.80	276	132	32.20
North Ferry	872	99	11.80	56	43	43.50
Totals	164,218	58,690	35.70	45,325	13,365	22.77

Table X.— Distribution of Inner Cordon Traffic
Market Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	1,538	9.24	714	824	53.51
Warren Bridge	8,488	878	10.35	209	669	76.20
Charles River Dam	15,218	900	5.91	272	628	69.85
Longfellow Bridge	11,100	942	8.49	420	522	55.41
Embankment Road	9,388	204	2.20	204	—	—
Charles Street	11,173	425	3.81	220	205	48.23
Beacon Street	11,666	804	6.89	394	410	51.00
Boylston Street	14,005	463	3.36	380	83	17.92
Stuart Street	11,492	297	2.58	126	171	57.51
Tremont Street	6,409	258	4.38	116	142	55.10
Washington Street	2,759	132	4.79	57	75	56.81
Harrison Avenue	5,676	319	5.63	84	235	73.66
Albany, Hudson and Tyler Streets	5,987	446	7.46	63	383	85.80
Dorchester Avenue	12,274	1,039	8.47	431	608	58.51
Summer Street	9,258	377	4.07	121	256	67.81
Congress Street Bridge	4,512	237	5.25	26	211	89.03
Northern Avenue	5,028	863	17.19	13	850	98.49
South Ferry	2,289	301	13.12	61	240	79.73
North Ferry	872	83	9.52	19	64	77.11
Totals	164,218	10,506	—	3,930	6,576	62.59

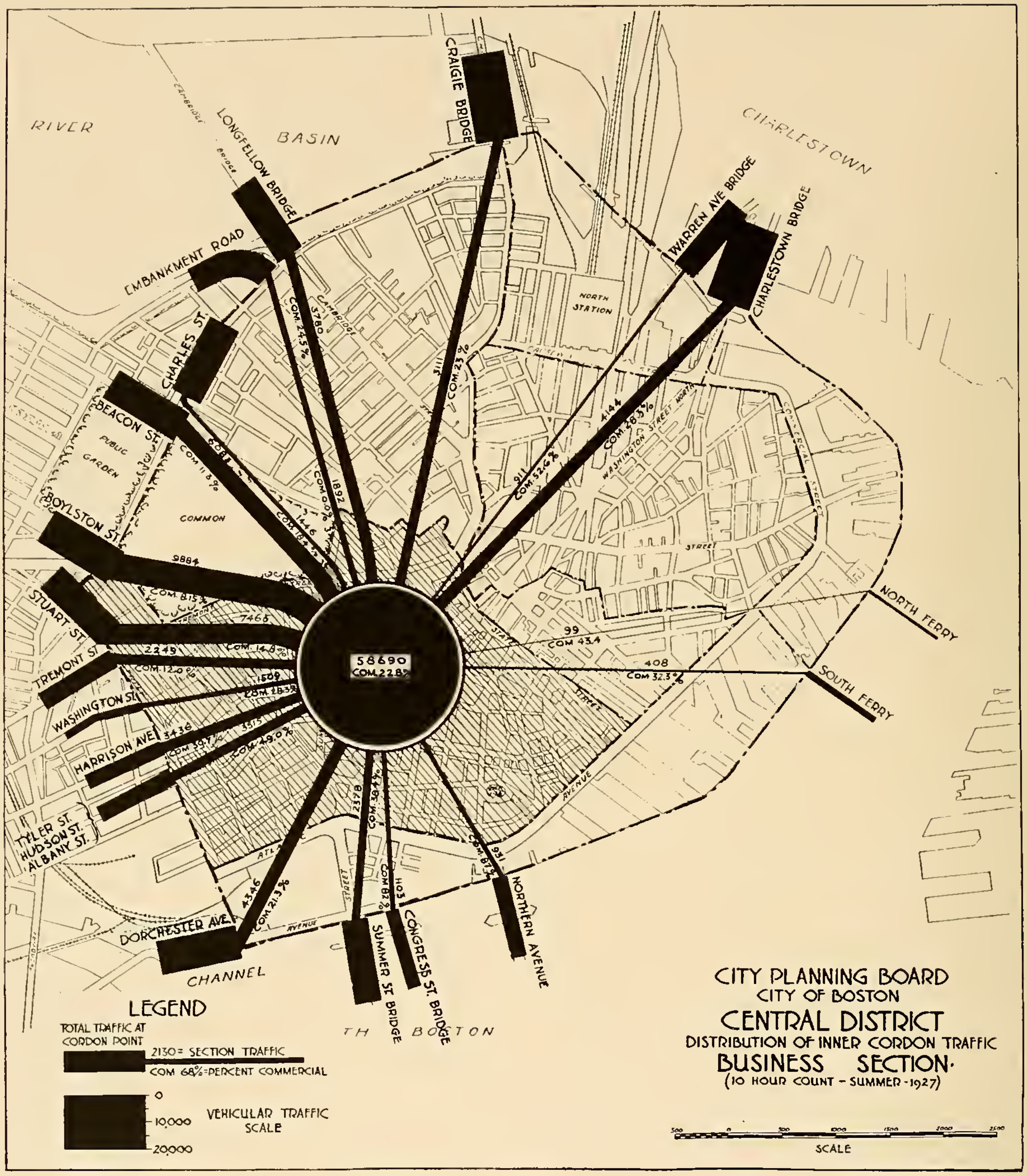


Figure 23

The above diagram shows the traffic from each gateway of the inner cordon to the Business Section. 40 per cent of the traffic to and from the Business Section enters from the Beacon, Boylston and Stuart gateways. 15 per cent comes from the northern gateways, including the ferries, the Charlestown and Warren Bridges, and the Charles River Dam.

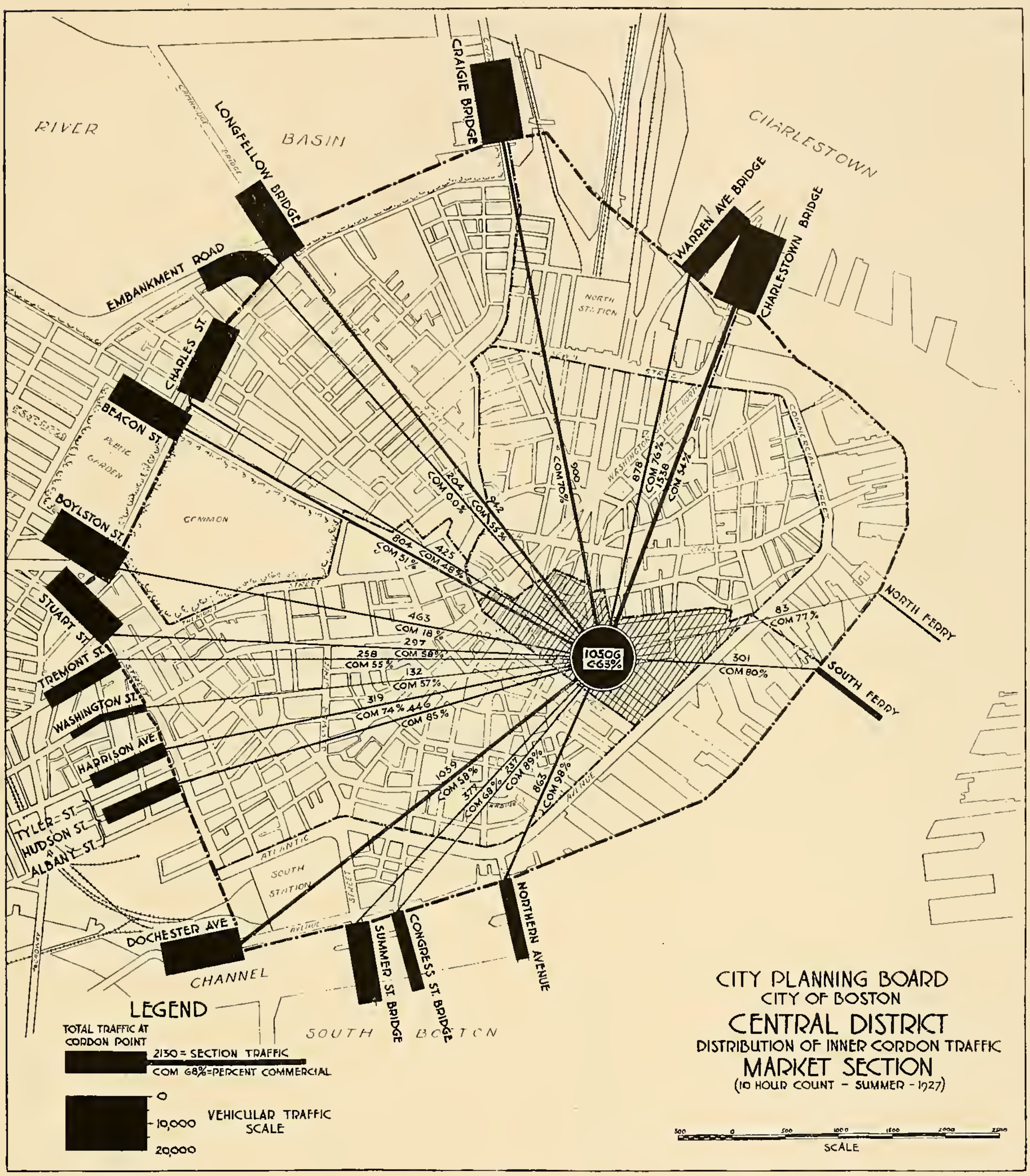


FIGURE 24

The Market Section takes about 10 per cent of the traffic to and from the Central District. 63 per cent of this traffic is commercial. Traffic to the Market Section is particularly heavy from the Charlestown and Warren Bridges. There is also a comparatively heavy traffic from the Charles River Dam, the Longfellow Bridge, Dorchester Avenue and the three South Boston bridges.

Table XI.— Distribution of Inner Cordon Traffic
Atlantic Avenue Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	1,673	1.00	1,047	626	37.42
Warren Bridge	8,488	480	5.65	181	299	62.29
Charles River Dam	15,218	652	4.28	212	440	67.48
Longfellow Bridge	11,100	320	2.88	262	58	18.10
Embankment Road	9,388	37	.38	37	—	—
Charles Street	11,173	184	1.64	120	64	34.80
Beacon Street	11,666	244	2.09	162	82	33.61
Boylston Street	14,005	854	6.09	750	104	12.18
Stuart Street	11,492	912	7.93	570	342	37.50
Tremont Street	6,409	258	4.02	158	100	38.75
Washington Street	2,759	118	4.27	92	26	22.03
Harrison Avenue	5,676	429	7.55	253	176	41.02
Albany, Hudson and Tyler Streets	5,987	483	8.06	190	293	60.66
Dorchester Avenue	12,274	1,280	10.42	816	464	36.25
Summer Street	9,258	957	10.33	589	368	38.45
Congress Street Bridge	4,512	518	11.48	95	423	81.66
Northern Avenue	5,028	909	18.07	106	803	88.33
South Ferry	2,289	195	8.51	92	103	52.80
North Ferry	872	45	5.16	20	25	55.55
Totals	164,218	10,548	—	5,752	4,796	45.47

Table XII.— Distribution of Inner Cordon Traffic
Commercial Street Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	180	1.09	109	71	39.4
Warren Bridge	8,488	134	1.57	28	106	79.10
Charles River Dam	15,218	76	.49	30	46	60.52
Longfellow Bridge	11,100	93	.08	35	58	62.36
Embankment Road	9,388	19	.20	19	—	—
Charles Street	11,173	33	.29	—	33	100.00
Beacon Street	11,666	—	—	—	—	—
Boylston Street	14,005	16	.11	11	5	31.2
Stuart Street	11,492	11	.09	11	—	—
Tremont Street	6,409	5	.07	5	—	—
Washington Street	2,759	4	.15	—	4	100.00
Harrison Avenue	5,676	14	.24	14	—	—
Albany, Hudson and Tyler Streets	5,987	11	.18	11	—	—
Dorchester Avenue	12,274	79	.64	15	64	81.01
Summer Street	9,258	76	.82	60	16	21.05
Congress Street Bridge	4,512	30	.66	—	30	100.00
Northern Avenue	5,028	131	2.40	53	78	59.54
South Ferry	2,289	24	1.04	6	18	75.00
North Ferry	872	34	3.89	6	28	82.35
Totals	164,218	970	—	413	557	57.42

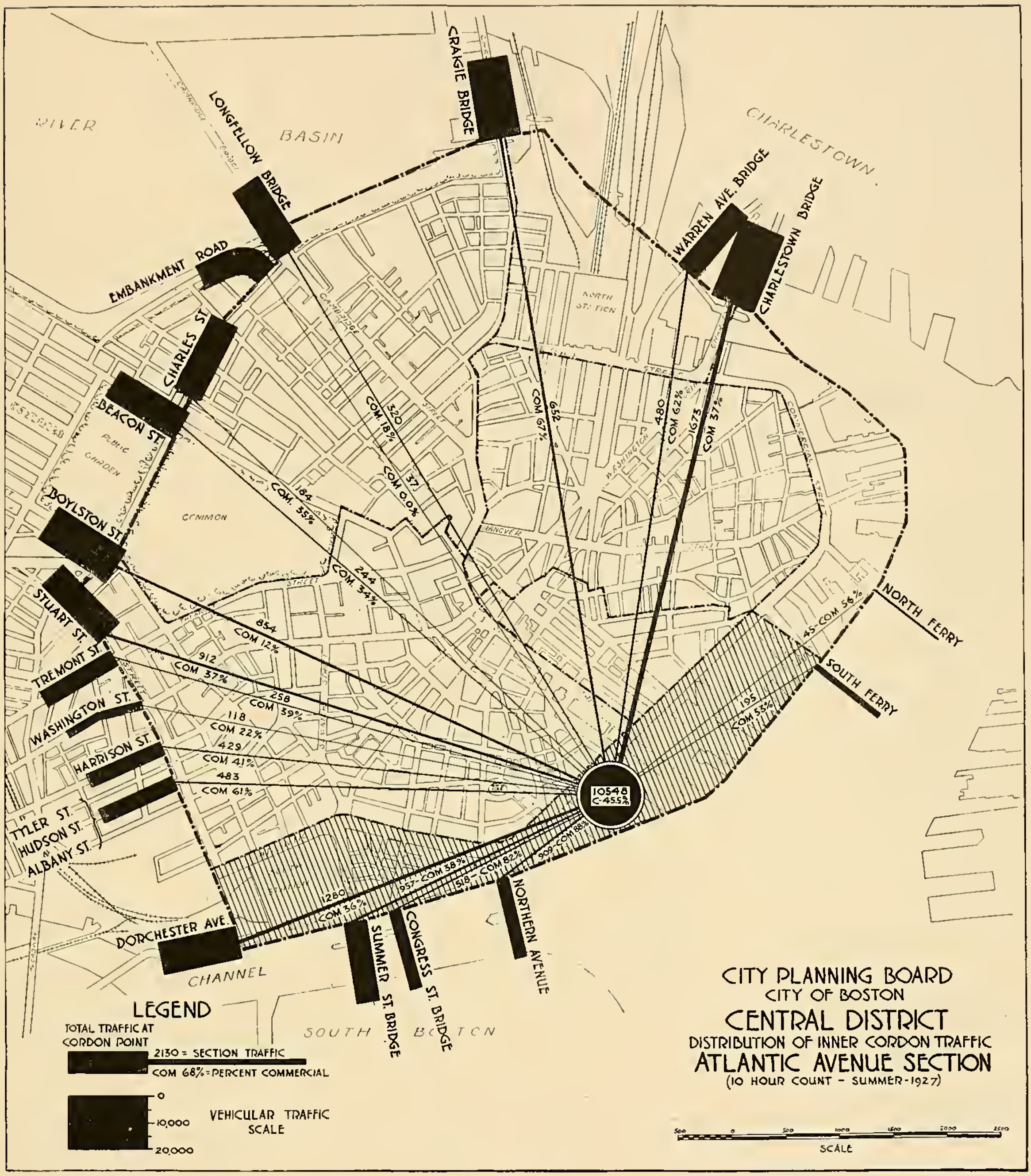


FIGURE 25

The Atlantic Avenue Section takes about 10 per cent of the traffic to and from the Central District. 45.5 per cent of this traffic is commercial. A comparatively large amount of the traffic is from the Charlestown and Warren Bridges. There is a large amount also from Dorchester Avenue and from the South Boston bridges.

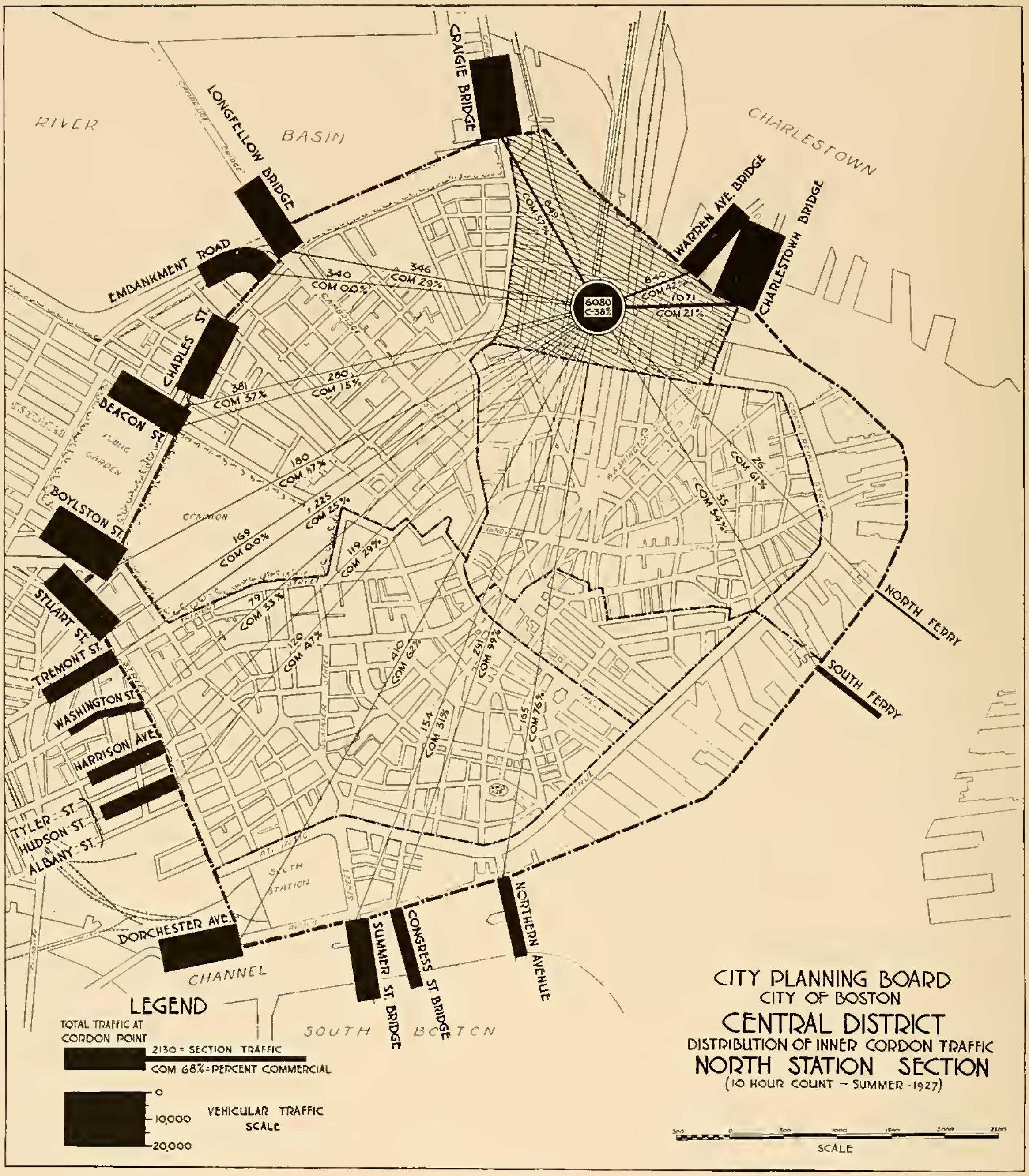


Figure 26

The North Station Section takes about 5.7 per cent of the traffic to and from the Central District. The heaviest traffic to this section comes from the Charlestown and Warren Bridges and the Charles River Dam. 38 per cent of this traffic is commercial.

Table XIII.— Distribution of Inner Cordon Traffic
North Station Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	1,071	6.44	834	237	22.12
Warren Bridge	8,488	840	9.95	488	352	41.91
Charles River Dam	15,218	849	5.56	363	486	57.24
Longfellow Bridge	11,100	346	3.11	245	101	29.19
Embankment Road	9,388	340	3.63	340	—	—
Charles Street	11,173	381	3.41	240	141	37.00
Beacon Street	11,666	280	2.40	239	41	14.64
Boylston Street	14,005	180	1.28	149	31	17.22
Stuart Street	11,492	169	1.47	169	—	—
Tremont Street	6,409	225	3.52	168	57	25.33
Washington Street	2,759	79	2.86	53	26	32.91
Harrison Avenue	5,676	119	2.09	84	35	29.41
Albany, Hudson and Tyler Streets	5,987	120	2.00	63	57	47.50
Dorchester Avenue	12,274	410	3.34	154	256	62.43
Summer Street	9,258	154	1.66	106	48	31.17
Congress Street Bridge	4,512	291	6.45	4	287	98.62
Northern Avenue	5,028	165	3.28	40	125	75.75
South Ferry	2,289	35	1.53	16	19	54.28
North Ferry	872	26	2.98	10	16	61.53
Totals	164,218	6,080	—	3,765	2,315	38.07

Table XIV.— Distribution of Inner Cordon Traffic
Haymarket Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	1,481	8.90	1,017	464	31.30
Warren Bridge	8,488	806	9.49	348	458	56.80
Charles River Dam	15,218	642	4.22	272	370	57.60
Longfellow Bridge	11,100	766	7.00	665	101	13.19
Embankment Road	9,388	316	3.33	316	—	—
Charles Street	11,173	385	3.44	180	205	53.20
Beacon Street	11,666	534	4.57	401	133	24.90
Boylston Street	14,005	193	1.38	162	31	16.05
Stuart Street	11,492	306	2.71	211	95	31.04
Tremont Street	6,409	148	2.36	105	43	29.00
Washington Street	2,759	145	5.29	110	35	24.09
Harrison Avenue	5,676	214	3.78	155	59	27.50
Albany, Hudson and Tyler Streets	5,987	212	3.59	116	96	45.28
Dorchester Avenue	12,274	453	3.70	277	176	38.80
Summer Street	9,258	63	.68	15	48	76.20
Congress Street Bridge	4,512	96	2.13	21	75	78.10
Northern Avenue	5,028	200	3.99	13	187	93.50
South Ferry	2,289	119	5.10	76	43	36.13
North Ferry	872	89	10.20	46	43	48.30
Totals	164,218	7,168	—	4,506	2,662	37.13

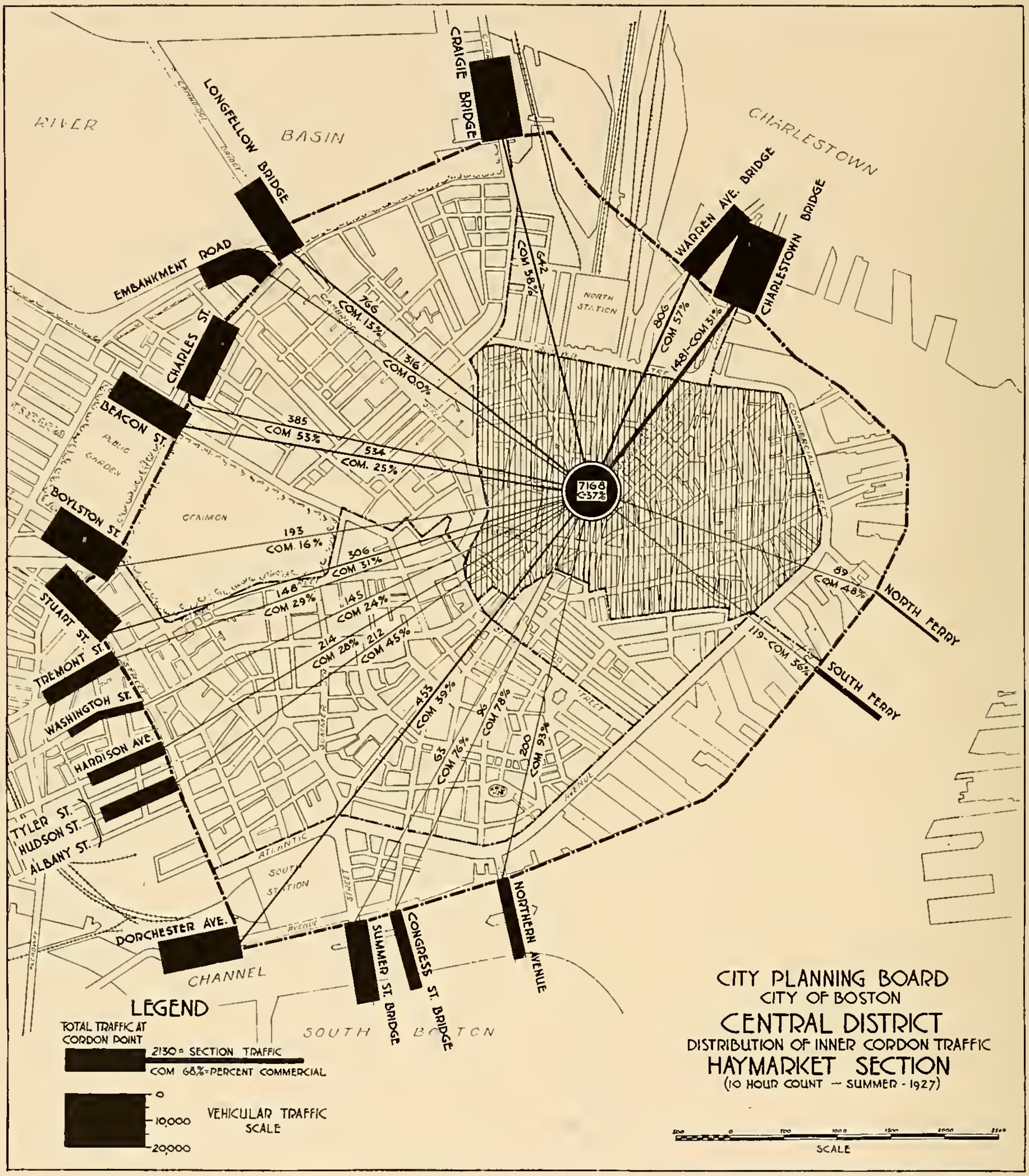


FIGURE 27

The Haymarket section takes about 6.7 per cent of the total traffic to and from the Central District. 37 per cent of this traffic is commercial. A large amount of the traffic to this section comes from the Charlestown Bridge. (See also Table XIV.)

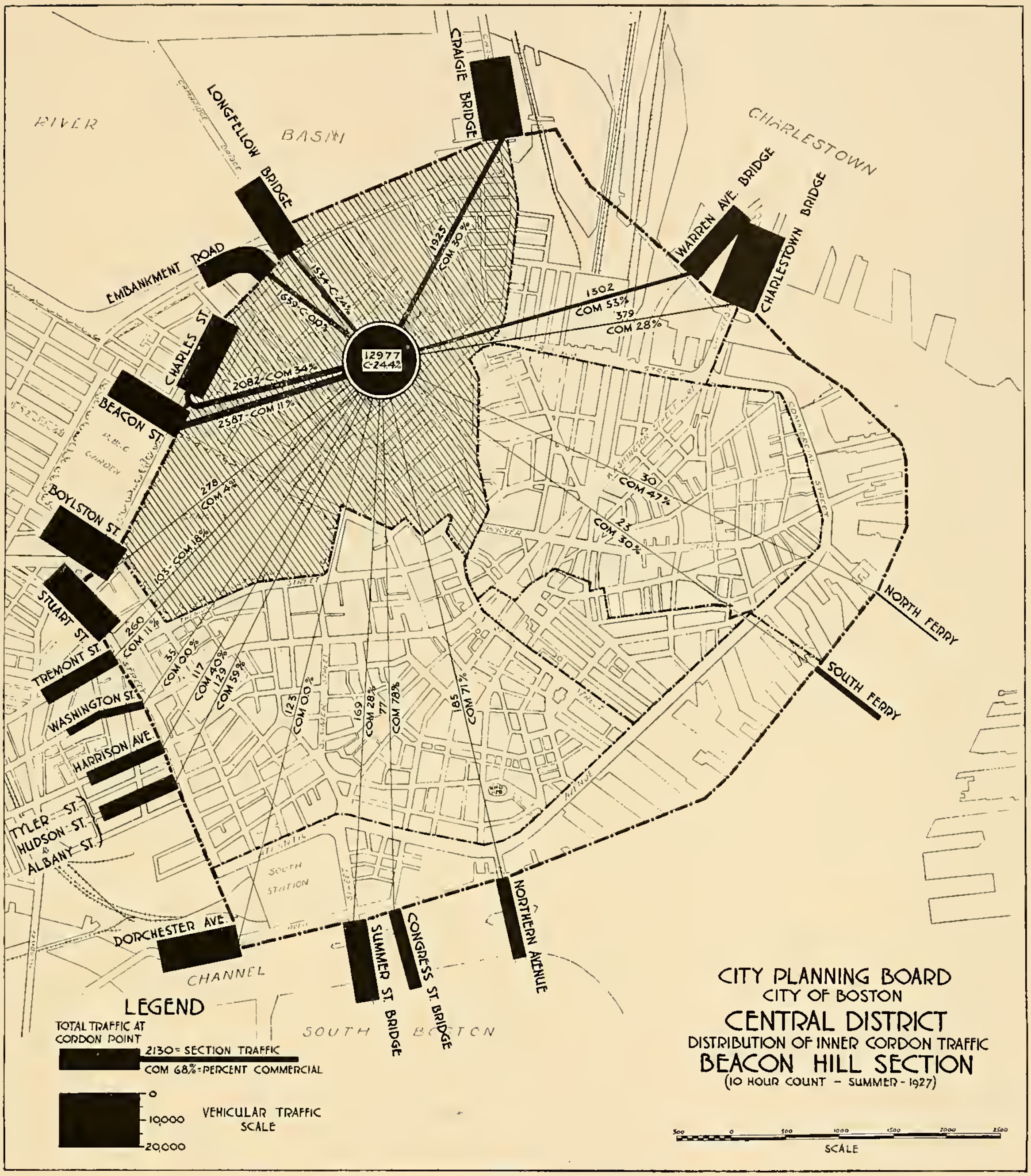


FIGURE 28

The Beacon Hill section takes about 13 per cent of the traffic to and from the Central District. 24.4 per cent of this traffic is commercial. Most of the traffic comes from Beacon Street, Embankment Road and the Longfellow and Craigie Bridges. (See also Table XV.)

Table XV.— Distribution of Inner Cordon Traffic
Beacon Hill Section
10-Hour Count — Summer, 1927

Cordon point	1 Total vehicles	2 Total to section	3 Per cent column 2 of column 1	4 Passenger vehicles	5 Commercial vehicles	6 Per cent commercial of column 2
Charlestown Bridge	16,624	379	2.24	273	106	27.96
Warren Bridge	8,488	1,302	15.56	613	689	52.90
Charles River Dam	15,218	1,925	12.62	1,346	579	30.06
Longfellow Bridge	11,100	1,534	13.82	1,172	362	23.60
Embankment Road	9,388	1,639	17.46	1,639	—	—
Charles Street	11,173	2,082	18.70	1,380	702	33.70
Beacon Street	11,666	2,587	22.12	2,300	287	11.10
Boylston Street	14,005	278	1.98	268	10	3.60
Stuart Street	11,492	103	.89	84	19	18.44
Tremont Street	6,409	260	4.12	231	29	11.15
Washington Street	2,759	35	1.27	35	—	—
Harrison Avenue	5,676	117	2.02	70	47	40.17
Albany, Hudson and Tyler Streets	5,987	129	2.16	53	76	58.90
Dorchester Avenue	12,274	123	1.00	123	—	—
Summer Street	9,258	169	1.82	121	48	28.50
Congress Street Bridge	4,512	77	1.75	17	60	77.90
Northern Avenue	5,028	185	3.69	53	132	71.30
South Ferry	2,289	23	1.00	16	7	30.43
North Ferry	872	30	3.43	16	14	46.66
Totals	164,218	12,977	—	9,810	3,167	24.41

Table XVI.— Analysis of Origin and Destination Diagram, Beacon Street (East of Charles Street)
10-Hour Count, Summer, 1927

Traffic West			Traffic East		
District	Cars	Per cent	District	Cars	Per cent
Central	**290**	**2.5**	**Central**	**10,822**	**93.4**
North Station	25	0.2	Business	6,249	54.0
Beacon Hill	265	2.3	Market	804	6.9
Back Bay	**3,048**	**26.3**	Atlantic Avenue	244	2.1
Back Bay	1,105	9.5	North Station	288	2.5
Park Square	1,320	11.4	Haymarket	549	4.7
South End	605	5.2	Beacon Hill	2,688	23.2
Albany Street	18	0.2	**Charles River Dam**	**16**	**0.1**
South Boston	**81**	**0.7**	**Charlestown and Warren Bridges**	**596**	**5.1**
Roxbury Route	**1,445**	**12.5**	**East Boston**	**63**	**0.6**
Massachusetts Avenue	388	3.4	**South Boston**	**56**	**0.5**
Roxbury	268	2.3	**Dorchester Route**	**40**	**0.3**
Beyond Roxbury	788	6.8			
Route to the West	**6,357**	**54.9**		**11,593**	**100.0**
Harvard Bridge	822	7.1			
Commonwealth Avenue	1,026	8.9			
Brookline	2,093	18.0			
Newton	986	8.5			
Fens	1,203	10.4			
Boylston Street	227	2.0			
Craigie Bridge	**372**	**3.2**			
	11,593	**100.1**			

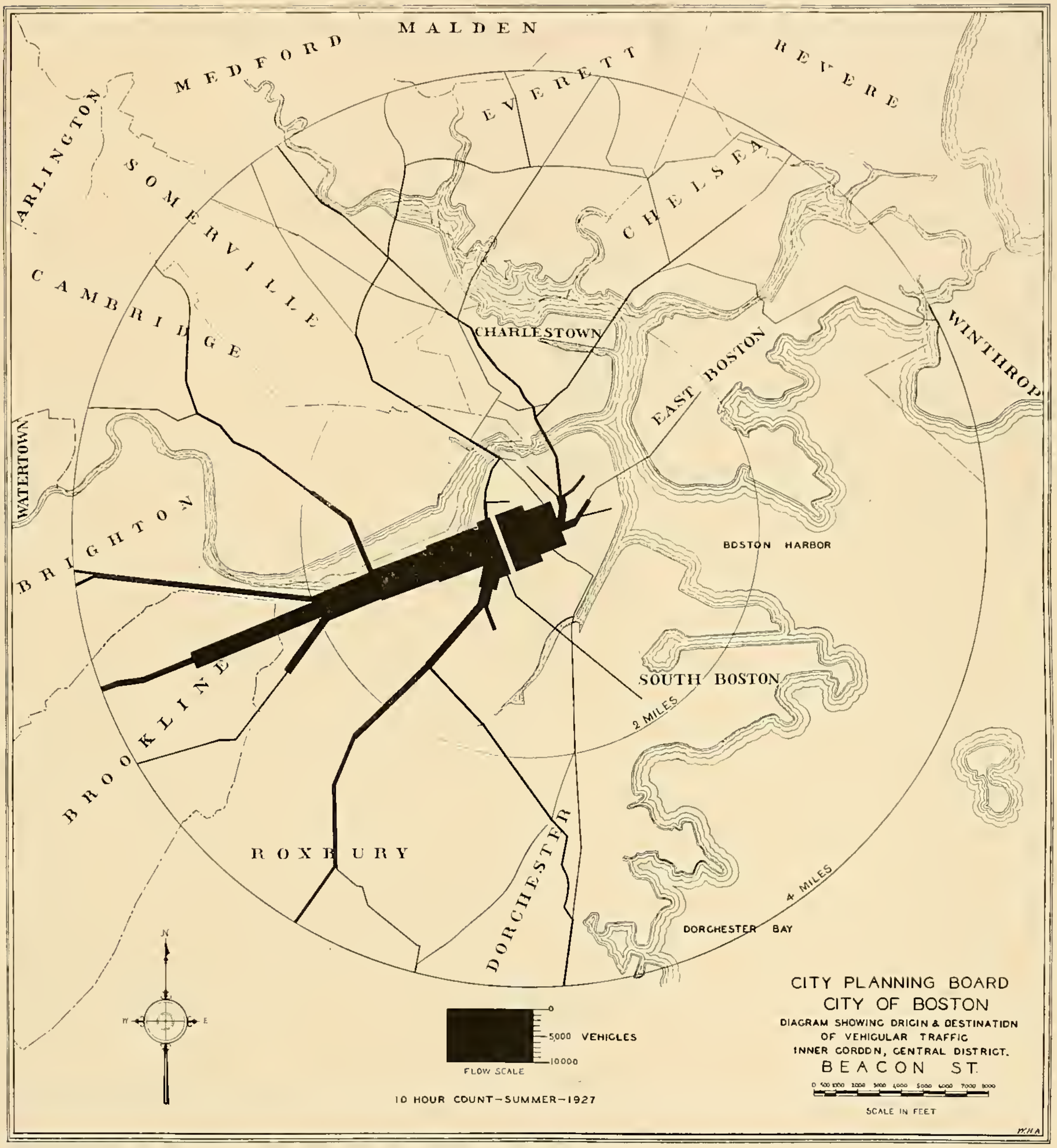


Figure 29

Of the vehicles entering or leaving the Central District via Beacon Street 93.4 per cent have an origin or a destination within the Central District. Only 5.1 per cent cross the Charlestown and Warren Bridges. Of those going to or from the west 26.3 per cent are from the Back Bay or South End. (See also Table XVI.)

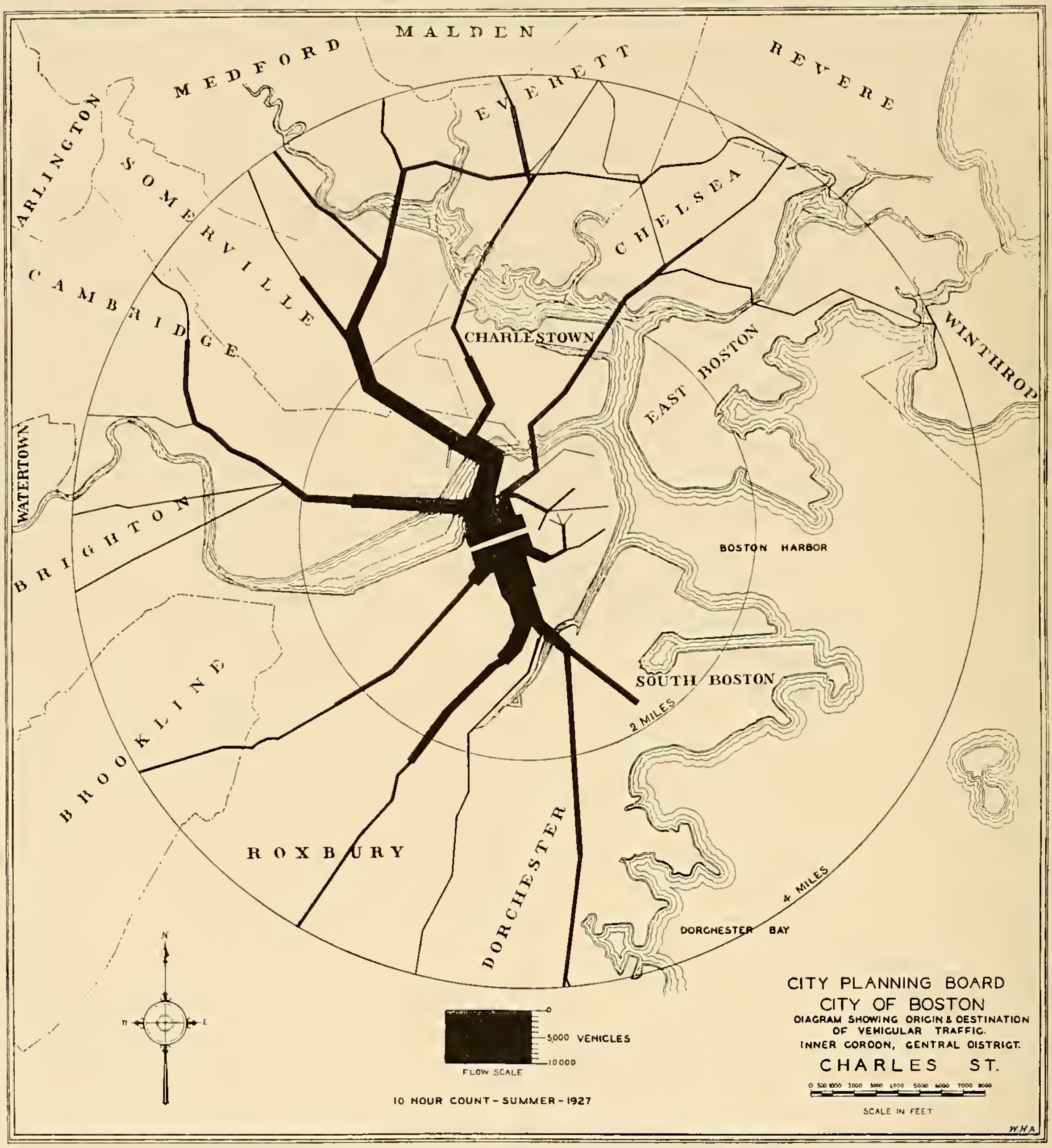


FIGURE 30

The above diagram shows the origin and destination of traffic on Charles Street west of Beacon Street. (See also Table XVII.) Of the traffic north 32.6 per cent is to or from some point in the Central District. 21.2 per cent uses the Longfellow Bridge; 36.9 per cent the Charles River Dam and 7.7 per cent the Charlestown and Warren Bridges. Of the traffic toward the south 18.3 per cent is to or from the Central District and 42.3 per cent is to or from the Back Bay or the South End. 9.1 per cent is to or from South Boston.

Table XVII.— Analysis of Origin and Destination Diagram, Charles Street (West of Beacon Street)

10-Hour Count, Summer, 1927

Traffic South			Traffic North		
District	Cars	Per cent	District	Cars	Per cent
Central	**2,049**	**18.3**	**Central**	**3,653**	**32.6**
Business	1,346	12.0	Business	224	2.0
Market	421	3.8	Market	35	0.3
Atlantic Avenue	174	1.6	Atlantic Avenue	23	0.2
Haymarket	71	0.6	Commercial Street	35	0.3
Beacon Hill	37	0.3	North Station	449	4.0
Back Bay	**4,721**	**42.3**	Haymarket	358	3.2
Back Bay	1,797	16.1	Beacon Hill	2,529	22.6
Park Square	1,442	12.9	**Back Bay**	**180**	**1.6**
South End	1,459	13.1	Back Bay	180	1.6
Albany Street	23	0.2	**Longfellow Bridge**	**2,371**	**21.2**
South Boston	**1,017**	**9.1**	**Charles River Dam**	**4,114**	**36.9**
Dorchester Route	**930**	**8.3**	Northern Artery	2,785	25.0
Blue Hill Avenue	**215**	**1.9**	Charlestown	696	6.2
Roxbury Route	**1,465**	**13.1**	Malden Bridge	633	5.7
Roxbury	1,035	9.3	**Charlestown and Warren Bridges**	**865**	**7.7**
Washington Street	430	3.8			
Huntington Avenue	**786**	**7.0**		**11,183**	**100.0**
	11,183	**100.0**			

Table XVIII.— Analysis of Origin and Destination Diagram, Embankment Road (South of Cambridge Street)

10-Hour Count, Summer, 1927

Traffic South			Traffic North		
District	Cars	Per cent	District	Cars	Per cent
Central	**1,933**	**20.6**	**Central**	**4,274**	**45.6**
Business	1,759	18.7	Business	486	5.2
Beacon Hill	174	1.9	Market	204	2.2
Back Bay	**3,327**	**35.5**	Atlantic Avenue	37	0.4
Back Bay	946	10.1	Commercial Street	19	0.2
Park Square	1,701	18.2	North Station	340	3.6
South End	680	7.2	Haymarket	316	3.4
South Boston	**69**	**0.7**	Beacon Hill	2,872	30.6
Dorchester Route	**491**	**5.2**	**Longfellow Bridge**	**960**	**10.2**
Roxbury Route	**1,441**	**15.4**	**Charles River Dam**	**3,165**	**33.8**
Roxbury	680	7.2	Northern Artery	2,143	22.9
Blue Hill Avenue	199	2.2	Charlestown	269	2.9
Washington Street	562	6.0	Malden Bridge	753	8.0
Huntington Avenue	**687**	**7.3**	**Charlestown and Warren Bridges**	**823**	**8.8**
Beacon Street	**1,440**	**15.3**	**East Boston**	**166**	**1.8**
	9,388	**100.0**		**9,388**	**100.2**

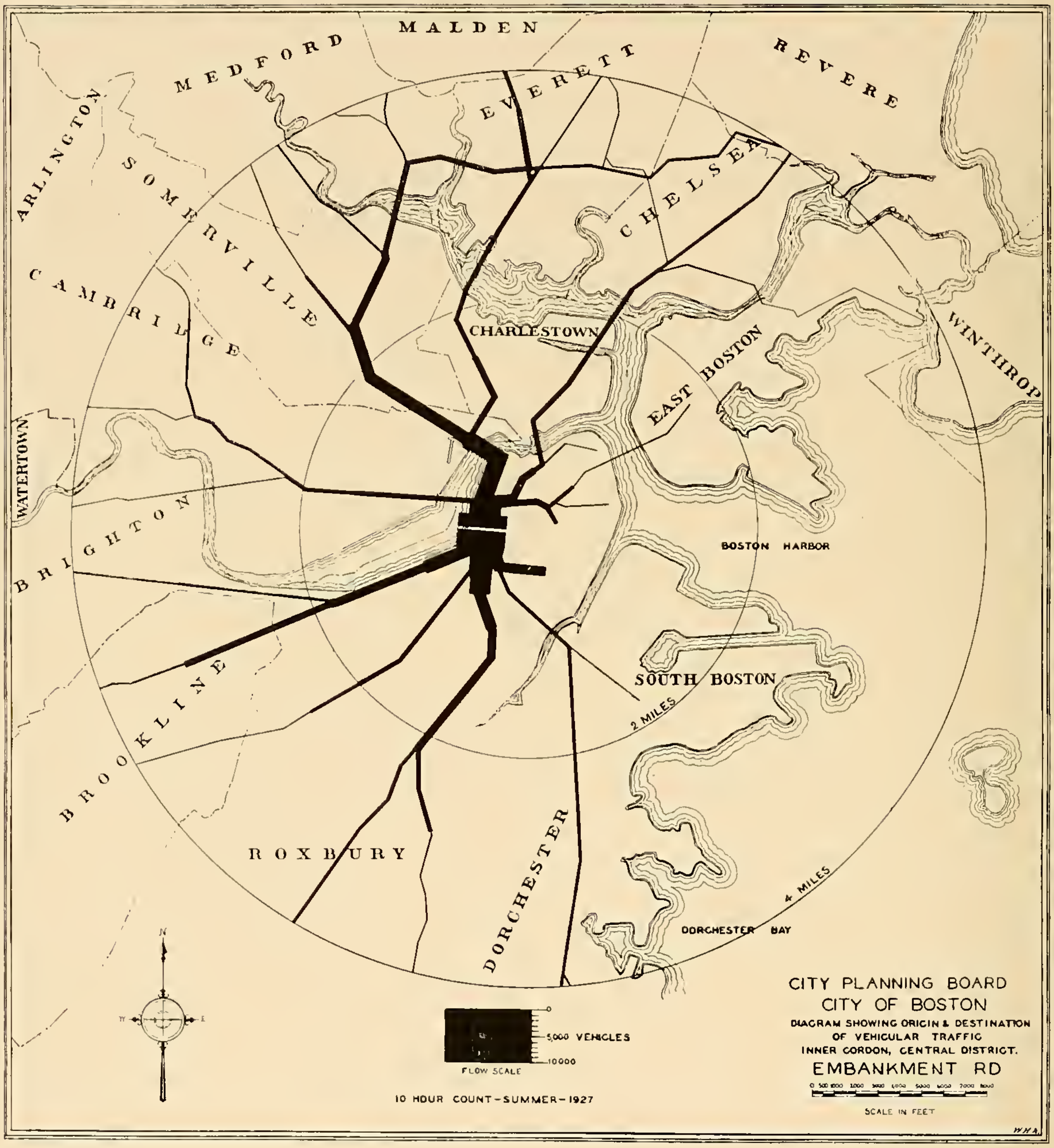


FIGURE 31

The above diagram shows the origin and destination of traffic on Embankment Road at a point south of Cambridge Street. (See also Table XVIII.) Of the traffic north 45.6 per cent is to or from the Central District. 10.2 per cent goes over the Longfellow Bridge; 33.8 per cent over the Charles River Dam and 8.8 per cent over the Charlestown and Warren Bridges. Of the traffic south 35.5 per cent is to or from the Back Bay or the South End.

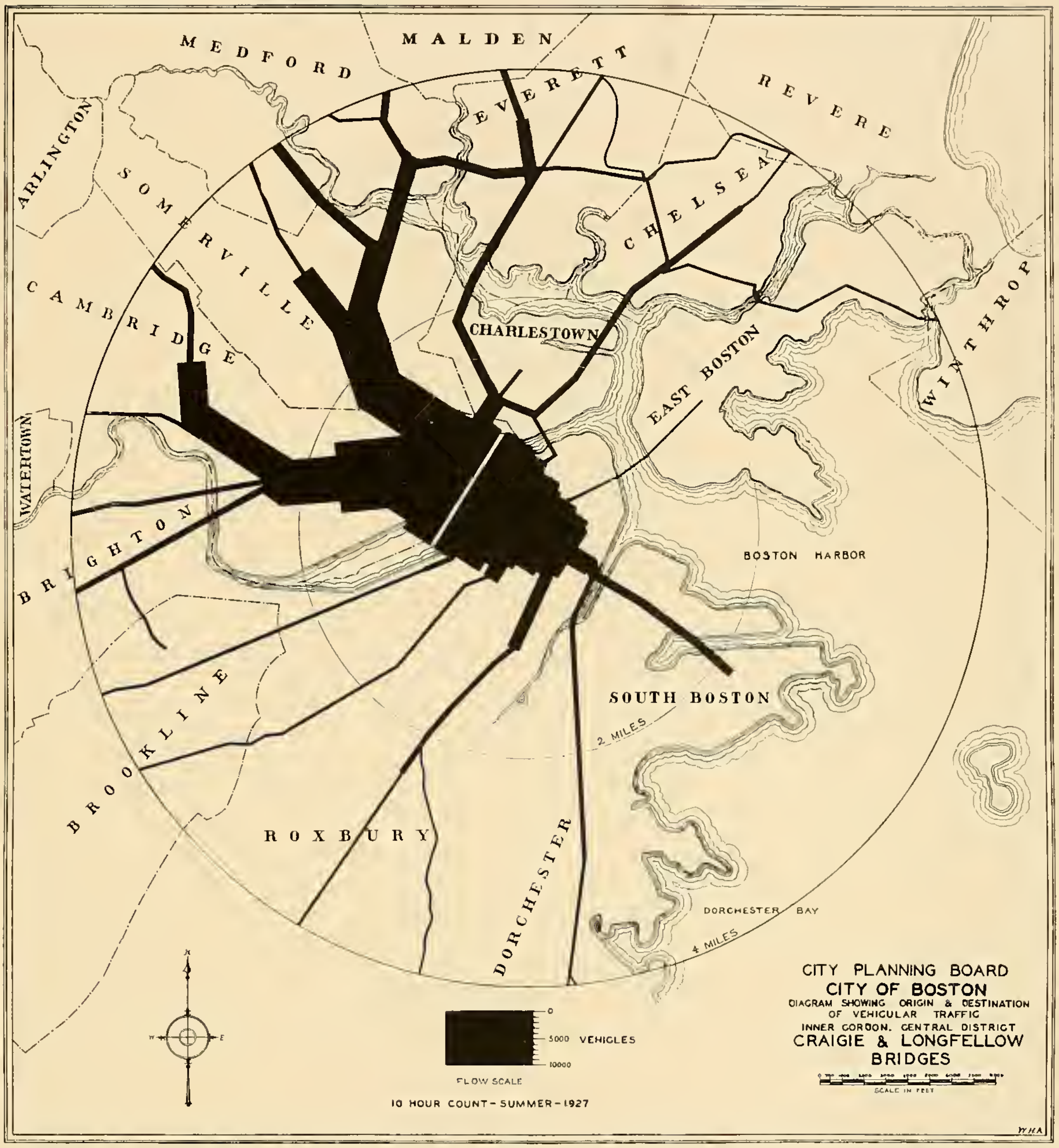


FIGURE 32

The above diagram shows the origin and destination of traffic over the Craigie and Longfellow Bridges. (See also Table XIX.) Of the traffic north and west 50.6 per cent uses Cambridge Street in Cambridge. 36.2 per cent uses the Northern Artery and 13.2 per cent the Prison Point Bridge. Of the traffic south and east 63.4 per cent is to or from the Central District; 19.1 per cent to or from the Back Bay and South End and 6.4 per cent to or from South Boston.

Table XIX.— Analysis of Origin and Destination Diagram, Craigie and Longfellow Bridges
10-Hour Count, Summer, 1927

Traffic South			Traffic North		
District	Cars	Per cent	District	Cars	Per cent
Central	**16,668**	**63.4**	**Prison Point Bridge**	**3,475**	**13.2**
Business	7,208	27.4	Chelsea Route	1,083	4.1
Market	1,927	7.3	Charlestown	718	2.7
Atlantic Avenue	1,017	3.9	Malden Route	1,674	6.4
Commercial Street	176	0.7	**Northern Artery**	**9,516**	**36.2**
North Station	1,250	4.8	Medford Route	5,012	19.1
Haymarket	1,472	5.6	Somerville Route	4,504	17.1
Beacon Hill	3,618	13.7	**Cambridge Street**	**13,313**	**50.6**
Back Bay	**5,023**	**19.1**	Cambridge	9,154	34.8
Back Bay	857	3.3	Arlington Route	1,099	4.2
Park Square	2,925	11.1	Belmont Route	692	2.6
South End	1,241	4.7	Watertown Route	954	3.6
South Boston	**1,688**	**6.4**	Brighton Route	1,414	5.4
Dorchester Route	**898**	**3.4**			
Blue Hill-Washington	**1,418**	**5.4**		**26,304**	**100.0**
Huntington Avenue	**162**	**0.6**			
Beacon Street	**54**	**0.2**			
Charlestown and Warren Bridges	**179**	**0.7**			
East Boston	**214**	**0.8**			
	26,304	**100.0**			

Table XX.— Analysis of Origin and Destination Diagram, Charlestown and Warren Bridges
10-Hour Count, Summer, 1927

Traffic South			Traffic North		
District	Cars	Per cent	District	Cars	Per cent
Central	**16,257**	**64.5**	**Charlestown**	**5,859**	**23.2**
Business	5,227	20.7	**Sullivan Square**	**9,658**	**38.4**
Market	2,478	9.8	Cambridge Route	261	1.1
Atlantic Avenue	2,223	8.8	Somerville Route	1,931	7.7
Commercial Street	321	1.3	Winchester Route	1,568	6.2
North Station	1,958	7.8	Stoneham Route	1,454	5.8
Haymarket	2,354	9.3	Malden Bridge	4,444	17.6
Beacon Hill	1,696	6.7	**Chelsea Bridge**	**9,682**	**38.4**
Back Bay	**1,724**	**6.8**	Winthrop Route	827	3.3
Back Bay	159	0.6	Chelsea	3,616	14.3
Park Square	801	3.2	Salem Pike	5,239	20.8
South End	752	3.0			
Albany Street	12	0.0		**25,199**	**100.0**
South Boston	**1,935**	**7.7**			
Dorchester Route	**2,085**	**8.3**			
Blue Hill Avenue	**681**	**2.7**			
Washington Street	**1,060**	**4.2**			
Huntington Avenue	**455**	**1.8**			
Beacon Street	**837**	**3.3**			
Longfellow Bridge	**135**	**0.5**			
East Boston	**30**	**0.1**			
	25,199	**99.8**			

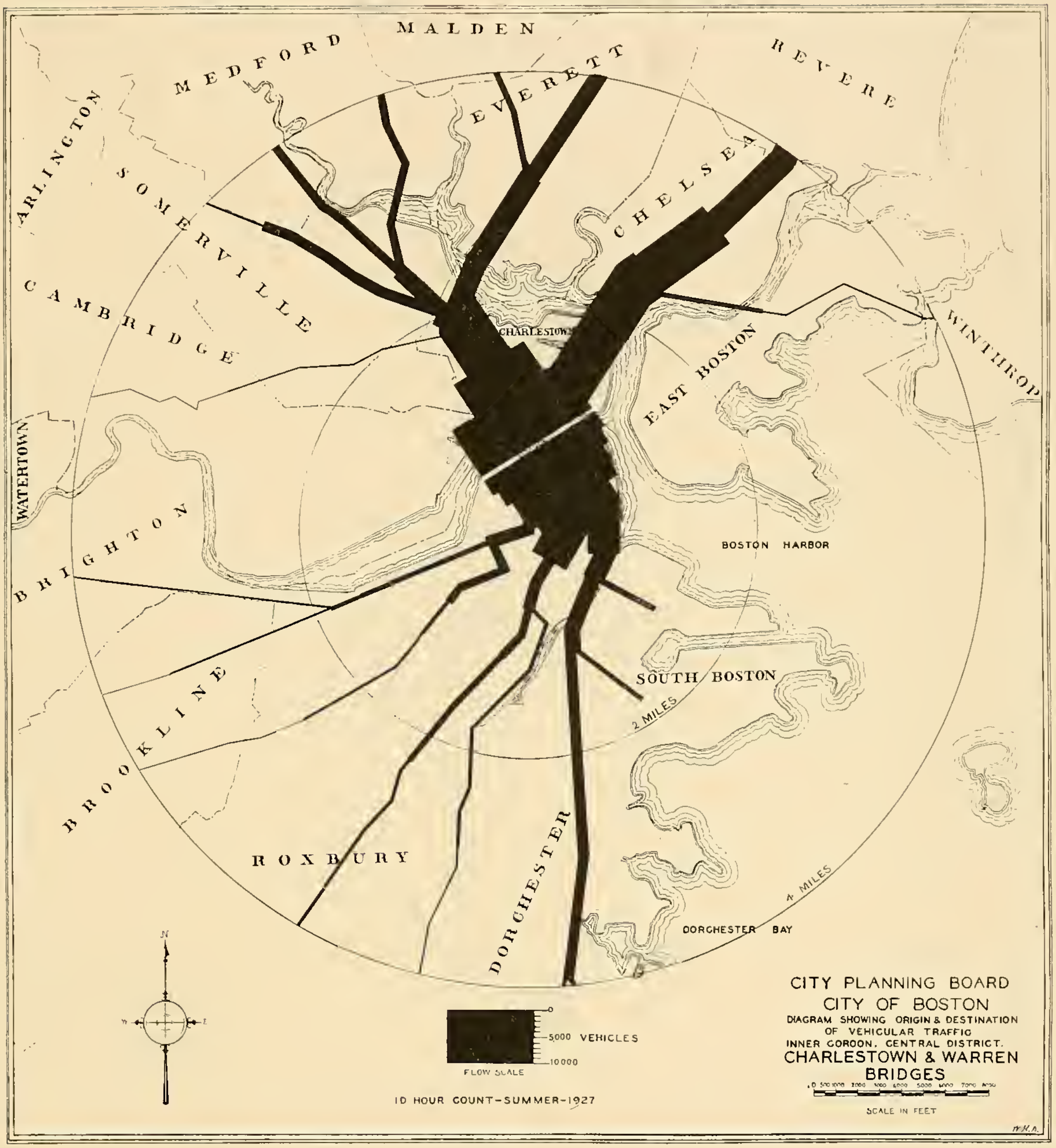


FIGURE 33

The above diagram shows the origin and destination of traffic over the Charlestown and Warren Bridges (see Tables XX and XXI). Of the traffic from the north 23.2 per cent originates in Charlestown, 38.4 per cent comes from points beyond Sullivan Square, and 38.4 per cent comes across Chelsea Bridge. Of this traffic across the Chelsea Bridge 37.5 per cent originates in Chelsea, 3.5 per cent originates in East Boston and Winthrop, and 54 per cent in Revere, Lynn, and other North Shore communities.

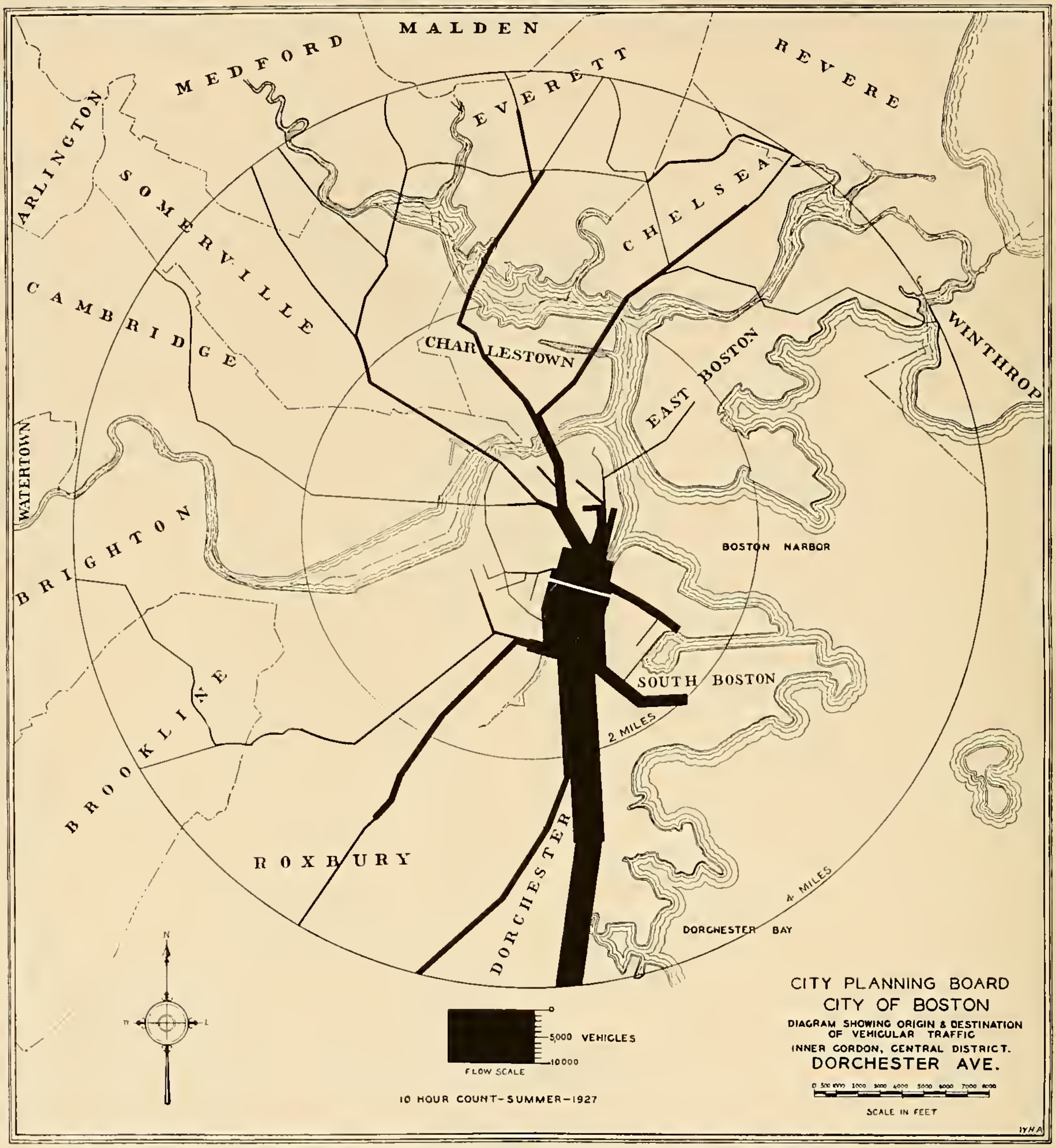


FIGURE 34

This diagram shows the origin and destination of traffic on Dorchester Avenue at a point south of Summer Street. This data is tabulated in the Appendix, Origin and Destination Count 15. The chart shows a very large amount of traffic from the South Sector. More than half the total traffic at this point consists of movements between the Central District and the South Sector. About one-sixth of the total traffic proceeds from the South Sector to the North Sector without stopping in the Central District. Most of this traffic to the North Sector uses the Charlestown or Warren Bridges.

TABLE XXI.— ORIGIN AND DESTINATION COUNT, CHARLESTOWN AND WARREN BRIDGES

TOTAL TRAFFIC IN BOTH DIRECTIONS BETWEEN POINTS LISTED

Volume Count — 25,199 10-Hour Count, Summer, 1927

Between / and	North Sector	East Boston	Charlestown	Chelsea	Everett	Northwest Sector	Somerville	West Sector	Cambridge
Central	**12,451**	326	3,877	2,038	1,255	**3,203**	1,115	**599**	166
Business	3,761	115	927	695	299	1,096	275	174	15
Market	1,802	35	796	328	83	517	133	95	20
Atlantic Avenue	1,647	30	467	292	217	423	157	80	10
Commercial Street	230	—	75	58	20	49	29	35	15
North Station	1,597	63	529	237	193	270	102	58	15
Haymarket	1,721	119	536	228	136	489	251	70	25
Beacon Hill	1,426	10	522	221	144	230	144	29	10
Back Bay	**1,469**	21	341	256	113	**238**	92	**21**	—
Back Bay	127	5	43	15	15	24	14	5	—
Park Square	641	—	76	97	—	121	48	24	—
South End	659	25	215	129	89	60	25	5	—
Albany Street	—	—	—	5	—	—	—	—	—
North Sector	**30**	30	—	—	—	—	—	—	—
Charlestown	30	30	—	—	—	—	—	—	—
West Sector	**1,322**	71	339	258	72	**106**	—	—	—
Fens	355	5	96	26	20	81	—	—	—
Brighton	174	—	36	62	21	—	—	—	—
Brookline	436	16	127	63	26	10	—	—	—
Southwest Sector	**532**	31	125	110	66	**92**	10	—	—
South Sector	**4,181**	127	1,147	954	419	**919**	319	**36**	5
South Boston	1,427	58	458	256	198	477	167	31	5
Roxbury	623	21	164	188	26	114	32	5	—
North Dorchester	281	11	68	62	36	31	5	—	—

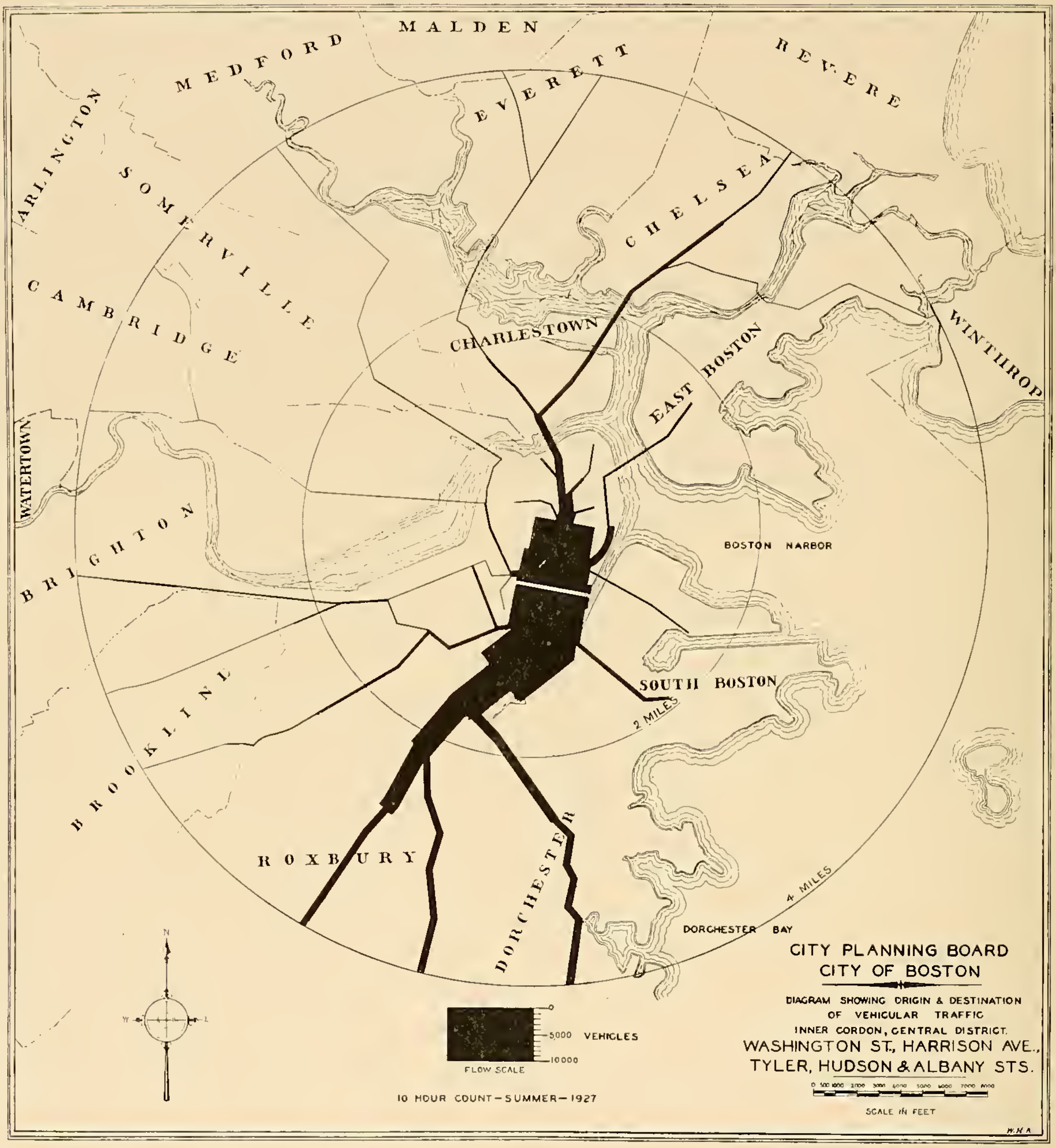


Figure 35.

The above diagram shows the distribution of traffic passing Washington Street, Harrison Avenue, Tyler, Hudson and Albany Streets at points just south of Kneeland Street. The data here shown is tabulated in the Appendix, Origin and Destination Count 13. The bulk of this traffic is between the South End, Roxbury, and Dorchester and the Central District. Only a small portion goes from the South End and the South Sector to the North Sector via the Charlestown and Warren Bridges.

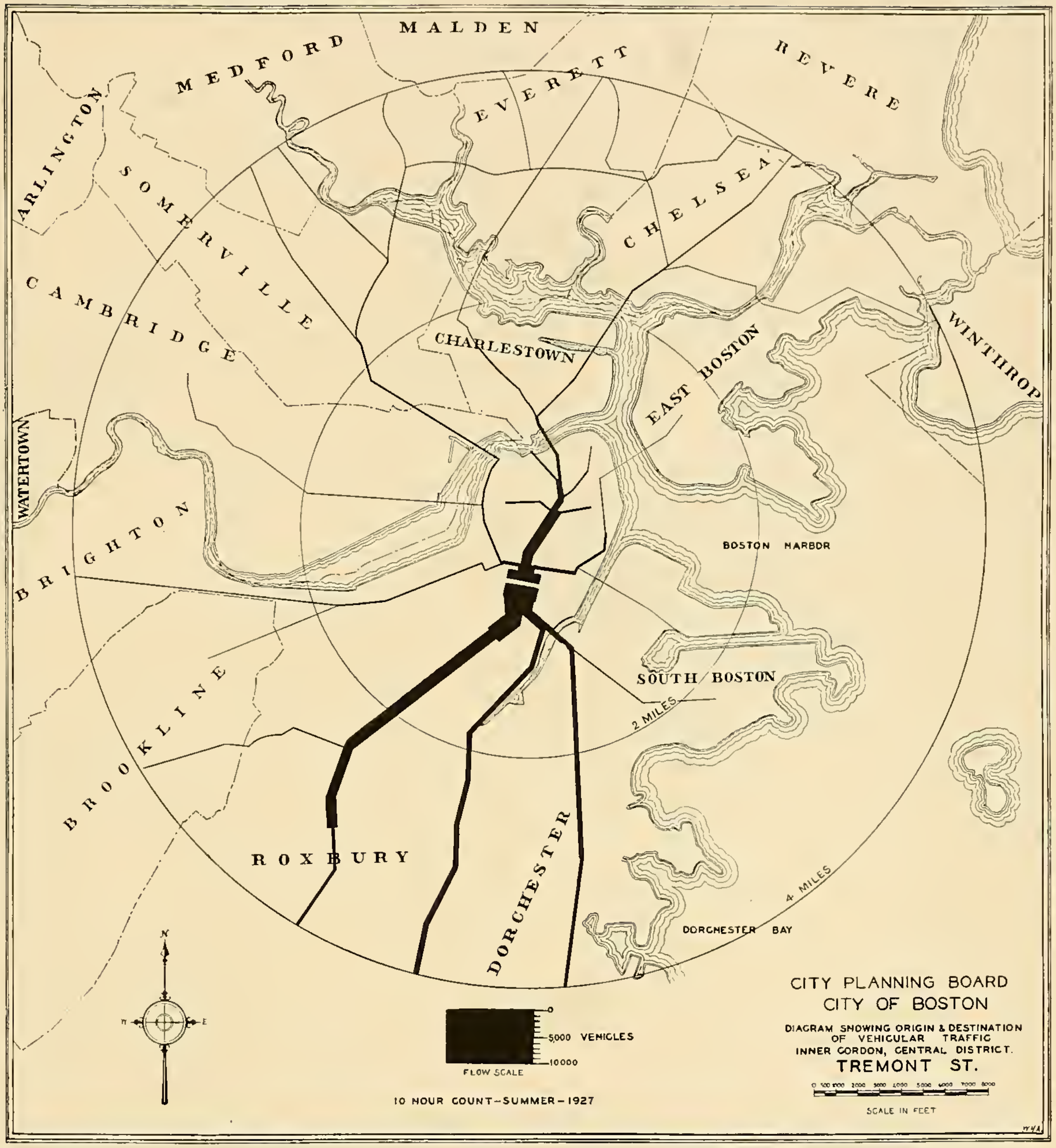


FIGURE 36

The above diagram shows the origin and destination of traffic on Tremont Street at a point south of Kneeland Street. This data is tabulated in the Appendix, Origin and Destination Count 10. Most of this traffic is between Roxbury and the South End and Central Boston. There is only a very small amount of traffic between the North Sector and the South End, Roxbury, and other points to the south.

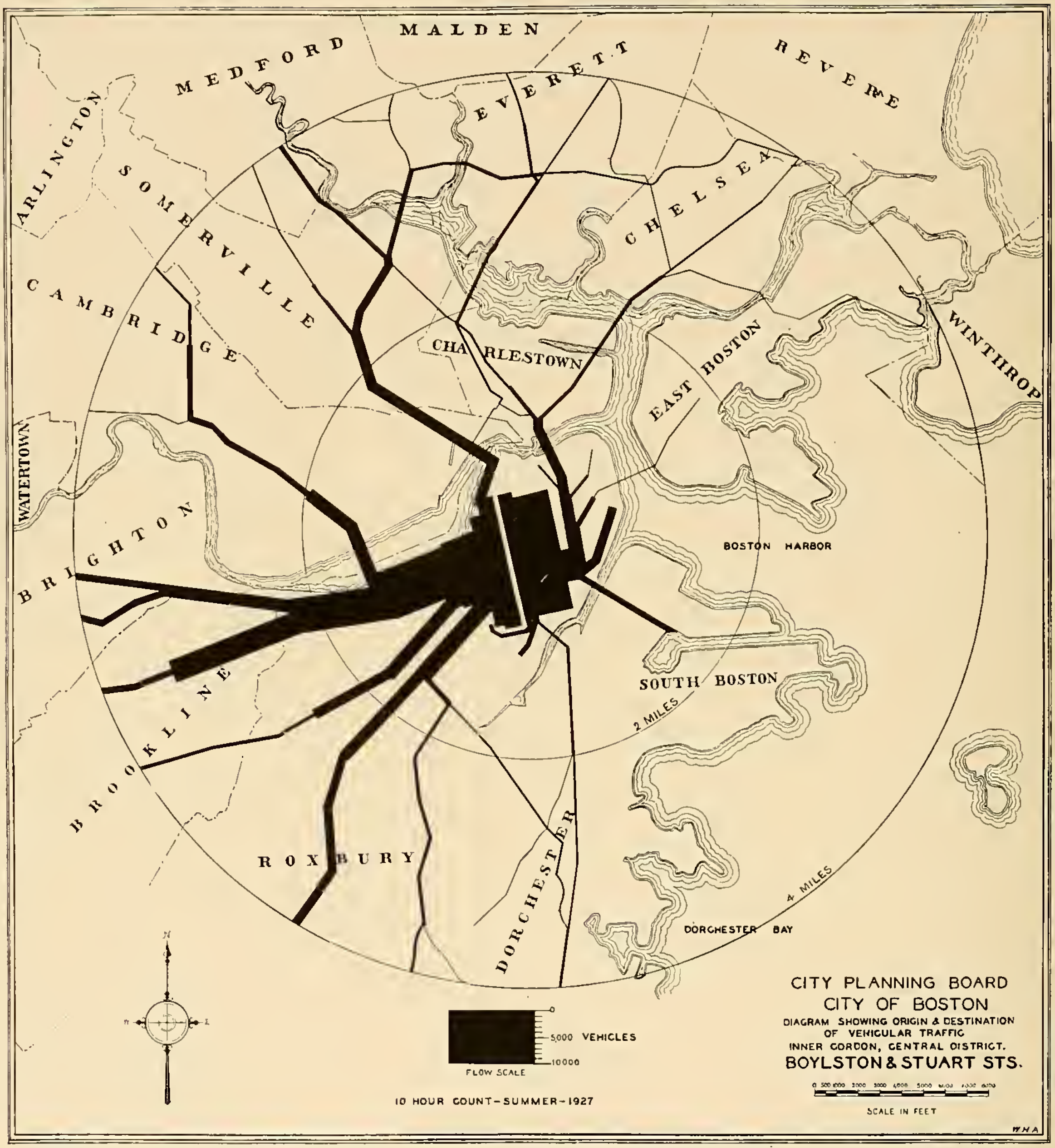


Figure 37

The above diagram shows the origin and destination of traffic on both Boylston and Stuart Streets at points west of Tremont Street. This data is tabulated in the Appendix, Origin and Destination Counts 8 and 9. The diagram shows a very large amount of traffic between the Central District and the Back Bay, Brookline, Brighton, Cambridge and other points to the west. There is also considerable traffic over the Charlestown and Warren Bridges from the North Sector to Back Bay.

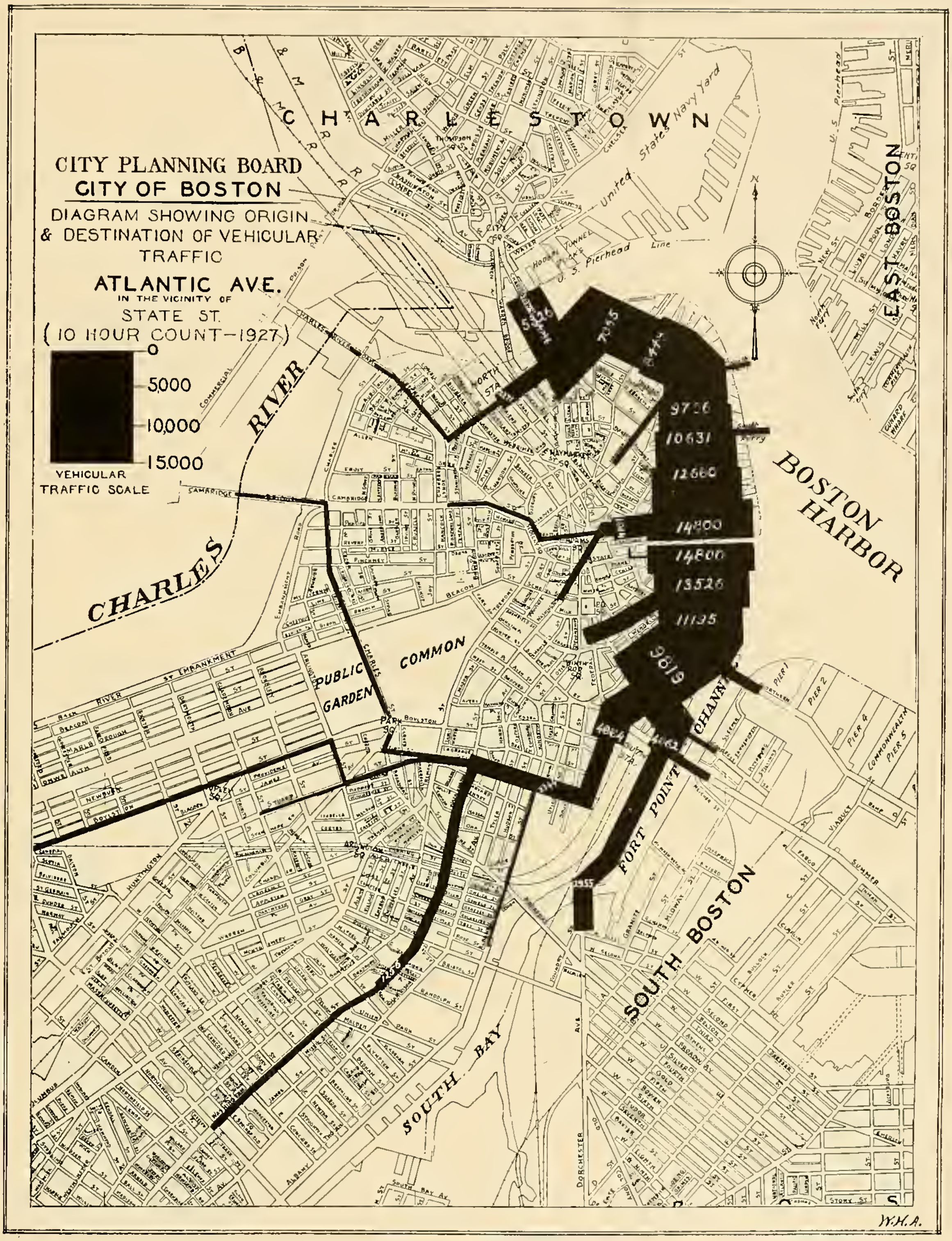

CITY PLANNING BOARD
CITY OF BOSTON
DIAGRAM SHOWING ORIGIN & DESTINATION OF VEHICULAR TRAFFIC
ATLANTIC AVE.
IN THE VICINITY OF
STATE ST.
(10 HOUR COUNT—1927)
0
5,000
10,000
15,000
VEHICULAR TRAFFIC SCALE
CHARLESTOWN
EAST BOSTON
CHARLES RIVER
BOSTON HARBOR
PUBLIC GARDEN
COMMON
FORT POINT CHANNEL
SOUTH BOSTON
SOUTH BAY
7095
9706
10631
12660
14800
14800
13526
11135
9819
W.H.A.

Figure 38

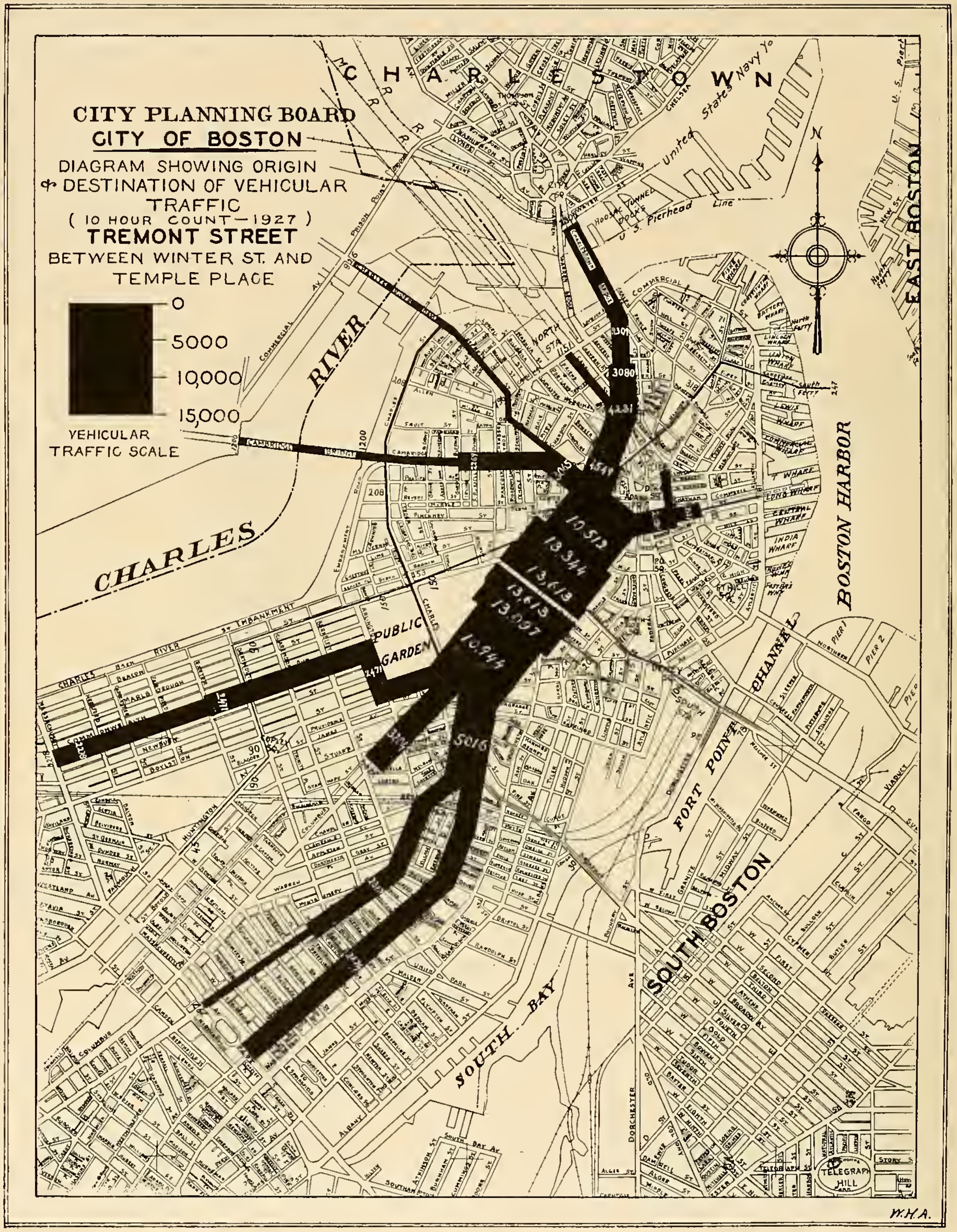

CITY PLANNING BOARD
CITY OF BOSTON
DIAGRAM SHOWING ORIGIN & DESTINATION OF VEHICULAR TRAFFIC
(10 HOUR COUNT—1927)
TREMONT STREET
BETWEEN WINTER ST. AND TEMPLE PLACE
0
5000
10,000
15,000
VEHICULAR TRAFFIC SCALE
CHARLESTOWN
EAST BOSTON
CHARLES RIVER
BOSTON HARBOR
PUBLIC GARDEN
SOUTH BOSTON
FORT POINT CHANNEL
SOUTH BAY
10,512
13,344
13,613
13,613
13,097
10,944
5016
3080
W.H.A.

Figure 39

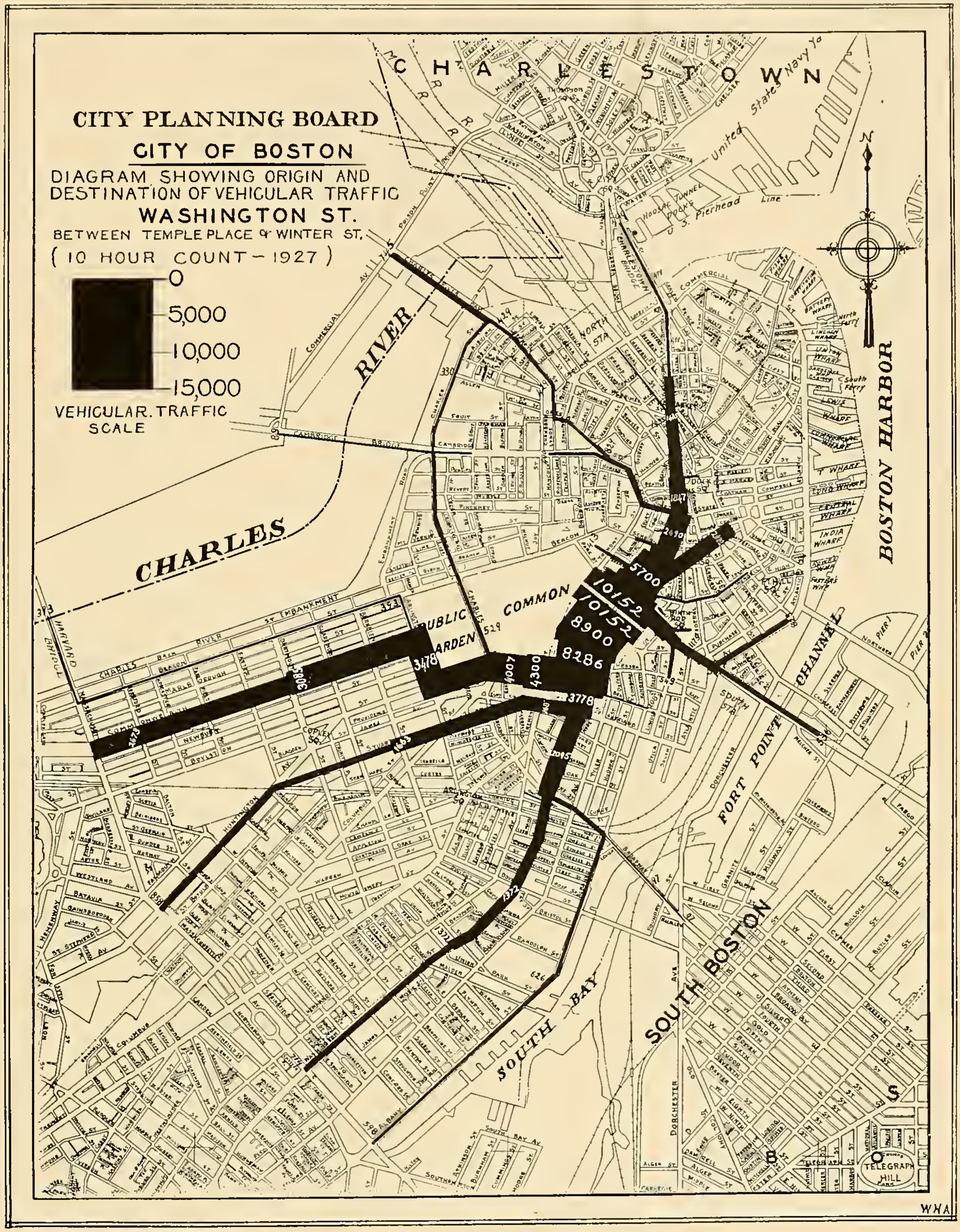

CITY PLANNING BOARD
CITY OF BOSTON
DIAGRAM SHOWING ORIGIN AND DESTINATION OF VEHICULAR TRAFFIC
WASHINGTON ST.
BETWEEN TEMPLE PLACE & WINTER ST.
(10 HOUR COUNT - 1927)
0
5,000
10,000
15,000
VEHICULAR. TRAFFIC SCALE
CHARLESTOWN
CHARLES RIVER
BOSTON HARBOR
PUBLIC GARDEN
COMMON
SOUTH BAY
SOUTH BOSTON
FORT POINT CHANNEL
10152
10152
8900
8286
5700
4300
4007
3778
3478
3085
WHA

Figure 40

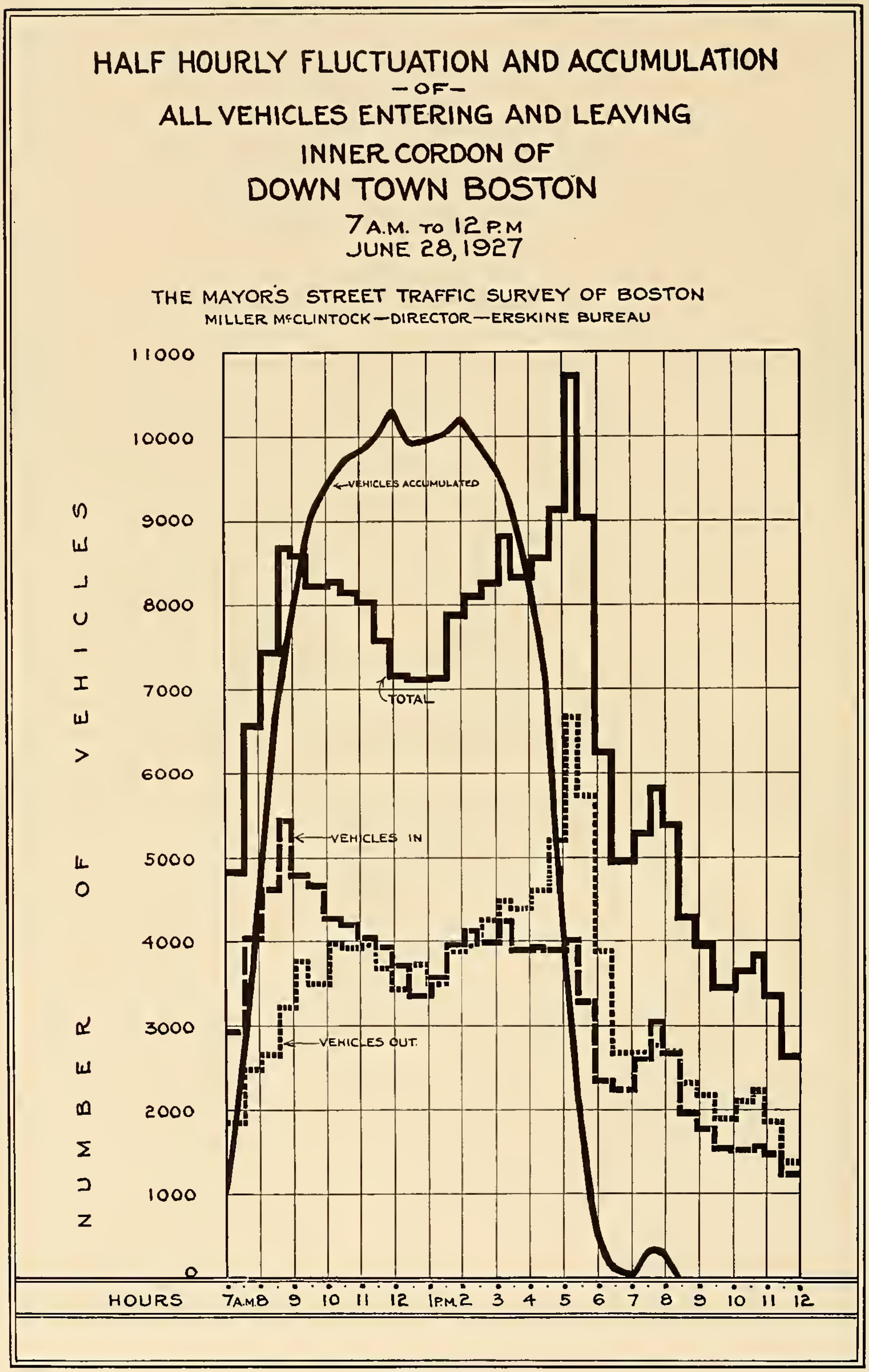

HALF HOURLY FLUCTUATION AND ACCUMULATION
—OF—
ALL VEHICLES ENTERING AND LEAVING
INNER CORDON OF
DOWN TOWN BOSTON
7 A.M. TO 12 P.M
JUNE 28, 1927
THE MAYOR'S STREET TRAFFIC SURVEY OF BOSTON
MILLER McCLINTOCK—DIRECTOR—ERSKINE BUREAU
NUMBER OF VEHICLES
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
VEHICLES ACCUMULATED
TOTAL
VEHICLES IN
VEHICLES OUT
HOURS
7 A.M. 8
9
10
11
12
1 P.M. 2
3
4
5
6
7
8
9
10
11
12

Figure 41

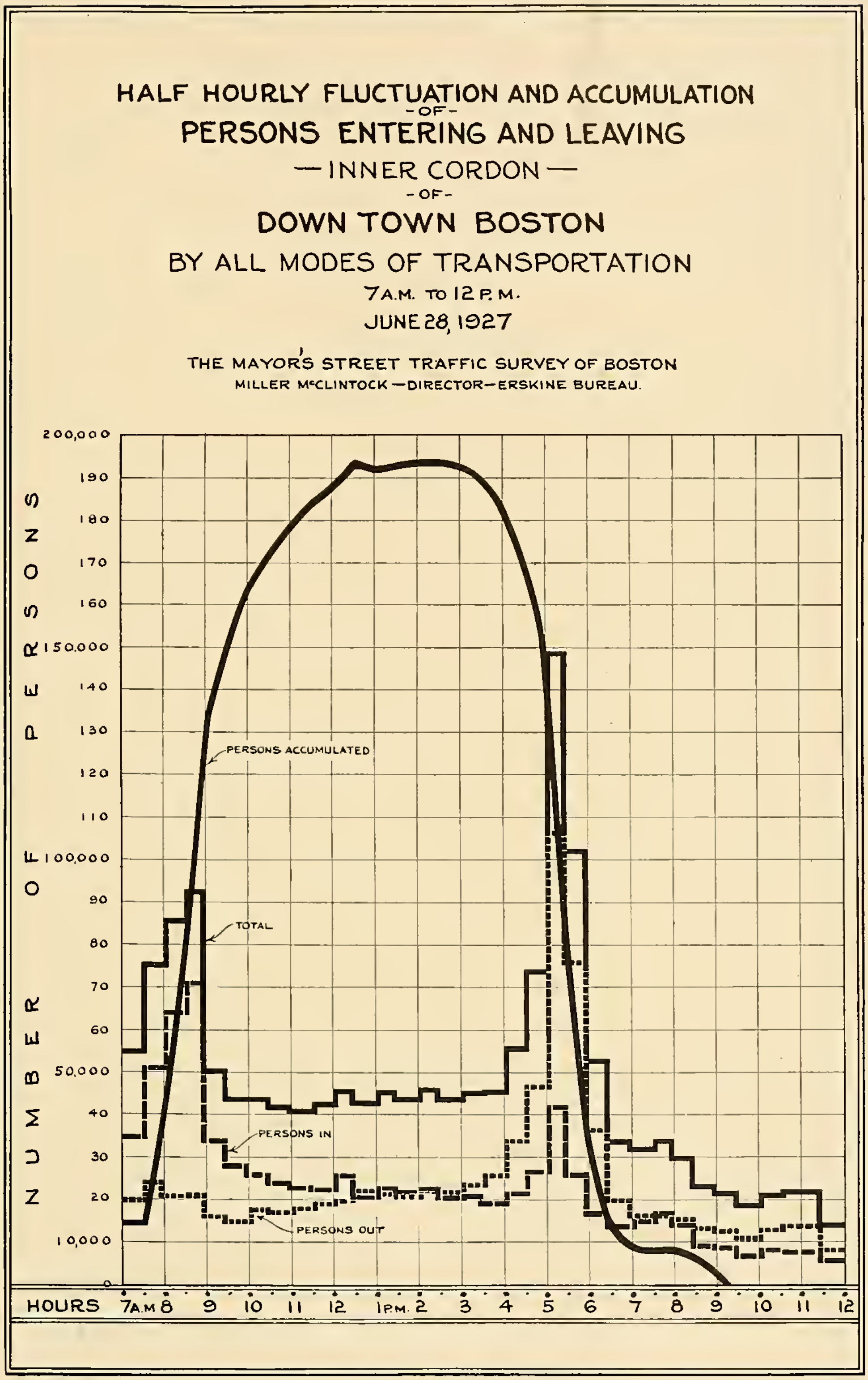

HALF HOURLY FLUCTUATION AND ACCUMULATION
-OF-
PERSONS ENTERING AND LEAVING
— INNER CORDON —
-OF-
DOWN TOWN BOSTON
BY ALL MODES OF TRANSPORTATION
7 A.M. TO 12 P.M.
JUNE 28, 1927
THE MAYOR'S STREET TRAFFIC SURVEY OF BOSTON
MILLER McCLINTOCK — DIRECTOR — ERSKINE BUREAU.
NUMBER OF PERSONS
200,000
190
180
170
160
150,000
140
130
120
110
100,000
90
80
70
60
50,000
40
30
20
10,000
0
PERSONS ACCUMULATED
TOTAL
PERSONS IN
PERSONS OUT
HOURS 7 A.M. 8 9 10 11 12 1 P.M. 2 3 4 5 6 7 8 9 10 11 12

Figure 42

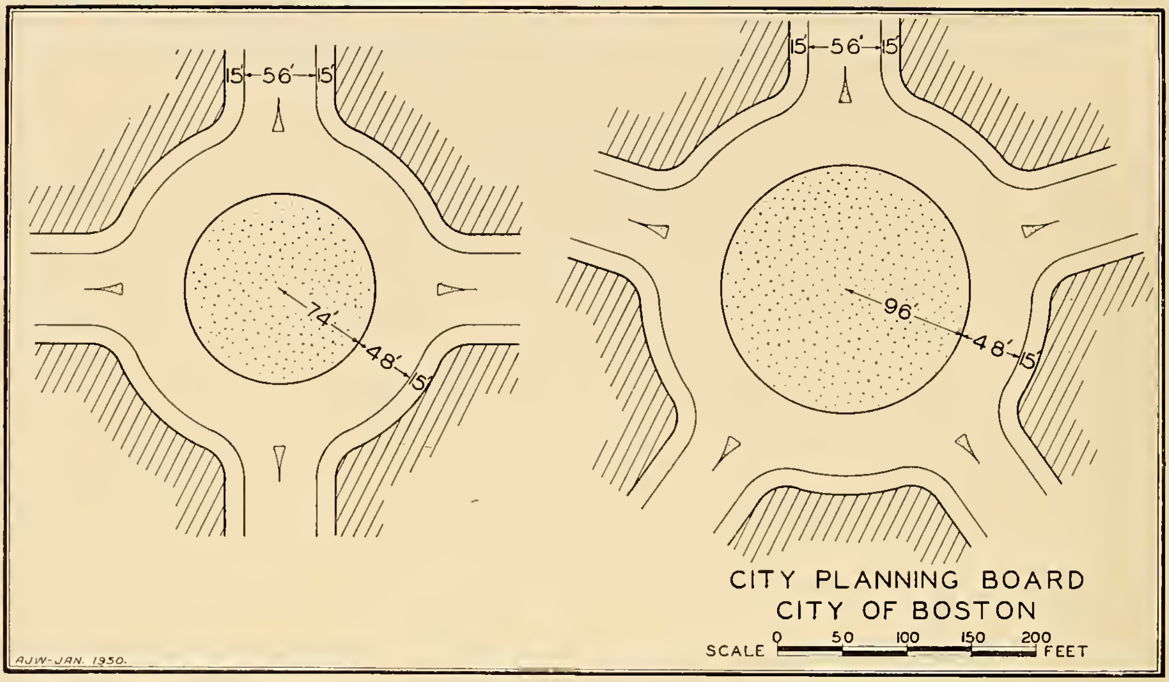


FIGURE 43.— TRAFFIC CIRCLES

The plan at the left shows a typical arrangement for a traffic circle at a 4-point intersection; and that at the right at a 5-point intersection. The inner circle radius for the 4-point intersection is 74 feet and for the 5-point intersection 96 feet. The greater radius in the case of the 5-point intersection is necessary so as to maintain, measured along the center line of the circular roadway, a minimum distance between the entering streets, center to center. This distance between entering streets is maintained at approximately 150 feet so as to provide adequate space for weaving.

The 48-foot circular roadways provide for four 12-foot lanes for one-way movement. The 12-foot unit is used in place of the normal 10-foot unit so as to allow for the overhang of the body of the turning vehicle and so as to give greater freedom for weaving.

A traffic circle is seldom as satisfactory as a grade separation. It is justified when the traffic is not heavy enough to warrant the greater expense of an underpass or overpass or where for some reason grade separation is not practical.

A prime essential for the success of a traffic circle is sufficient distance between entering streets to give vehicles an opportunity to weave. If adjacent streets enter the circle at an acute angle with each other vehicles are compelled to cross at right angles; there is no opportunity for weaving and consequently the reason for the traffic circle, that of securing a continuous flow of traffic, fails.

The proposed traffic circle and underpass at the Charles River Dam (Fig. 71) illustrates certain advantages and limitations both of the traffic circle and of the underpass. In this location a traffic circle alone would fail because inbound traffic from the Dam turning left into Nashua Street would cross practically at right angles traffic going from Nashua Street into Charles Street. This conflict is avoided by an underpass for through Nashua-Charles traffic. On the other hand the underpass without the traffic circle would fail because of the conflict between the heavy lines of traffic turning left to and from the bridge.

The proposed upper level traffic circle in the Central Artery at Haymarket Square is necessary so as to permit a daily total of 20,000 vehicles to and from the Charlestown and Warren Bridges to enter the upper level roadway without stopping the flow of through traffic on that roadway.

V. DESCRIPTION OF PROJECTS

MAJOR PROJECTS

PROJECT 1. EAST BOSTON TUNNEL

An act was passed by the 1929 Legislature and accepted by the City Council authorizing the Transit Department of the City of Boston to construct a vehicular tunnel to East Boston at an expense for tunnel and approaches of not more than $16,000,000. The building of a highway link between Central Boston and East Boston is deemed to be almost a first essential in any complete thoroughfare plan. It will promote the building up of East Boston both for industrial and residence purposes; it will give better access to Boston Proper from Chelsea, Revere and all North Shore communities and it will form a link in a new north-south route across Metropolitan Boston.

The vehicular flow chart of Metropolitan Boston shows that the bulk of the traffic from North Shore points reaches Central Boston by way of the Charlestown and Warren Bridges and the Charles River Dam. Only an almost negligible amount comes by the more direct route via the East Boston ferries.

An analysis of studies made by the Mayor's Street Traffic Survey shows that of the 16 traffic routes out of Boston on which time studies were made, the routes to the north by way of the Charlestown and Warren Bridges are the slowest with but one exception, that of the East Boston ferries. Starting from Tremont and Park Streets during the rush hours, a vehicle is able to go approximately 2½ miles during a 30-minute interval by way of the ferries. In the same time going by way of the Charlestown Bridge, Chelsea Street and Broadway a distance of 5 miles can be traveled. Starting from the same point and going west by way of Beacon Street toward Wellesley a distance of 10 miles can be traveled in the same time. In other words, starting from Tremont and Park Streets during the rush hours one may travel by way of the ferries at a speed of 5 miles an hour; by way of the Charlestown Bridge, Chelsea Street and Broadway at a speed of 10 miles an hour, and by the way of Beacon Street toward Wellesley at a speed of 20 miles an hour.

Bridge or Tunnel

Following the authorization contained in the 1929 Act, it had been assumed in the preparation of this report that a tunnel had been decided upon and would be constructed. The Mayor has recently petitioned the Legislature to authorize the city to construct either a tunnel or a bridge. Present estimates of the comparative cost of constructing and operating a bridge or tunnel are quite strongly in favor of a bridge. There is evidence that a bridge with a capacity for four lanes of vehicles can be built cheaper than twin two-lane tunnels of similar capacity. There is also evidence that the operating costs for a tunnel will be greatly in excess of those for the bridge.

The present estimates as to bridge cost are based on a clearance above mean high water of 135 feet. If the government should require a clearance of 200 feet the increase in the length and consequent cost of the approaches would put the bridge out of consideration. If, however, a clearance of 135 feet to 150 feet should be approved the bridge would be feasible and would furnish substantially the same traffic facility as twin two-lane tunnels.

The same tolls could be charged on the bridge as in the tunnel and it would attract substantially the same amount of traffic. The bridge could connect with the North Shore Radial and with the Central Artery at or near the locations suggested for the tunnel. The bridge would have an advantage over a tunnel in that it would have sidewalks for pedestrians. The chief disadvantage of the bridge as compared with the tunnel consists in the longer and somewhat steeper grades and the fact that in the tunnel

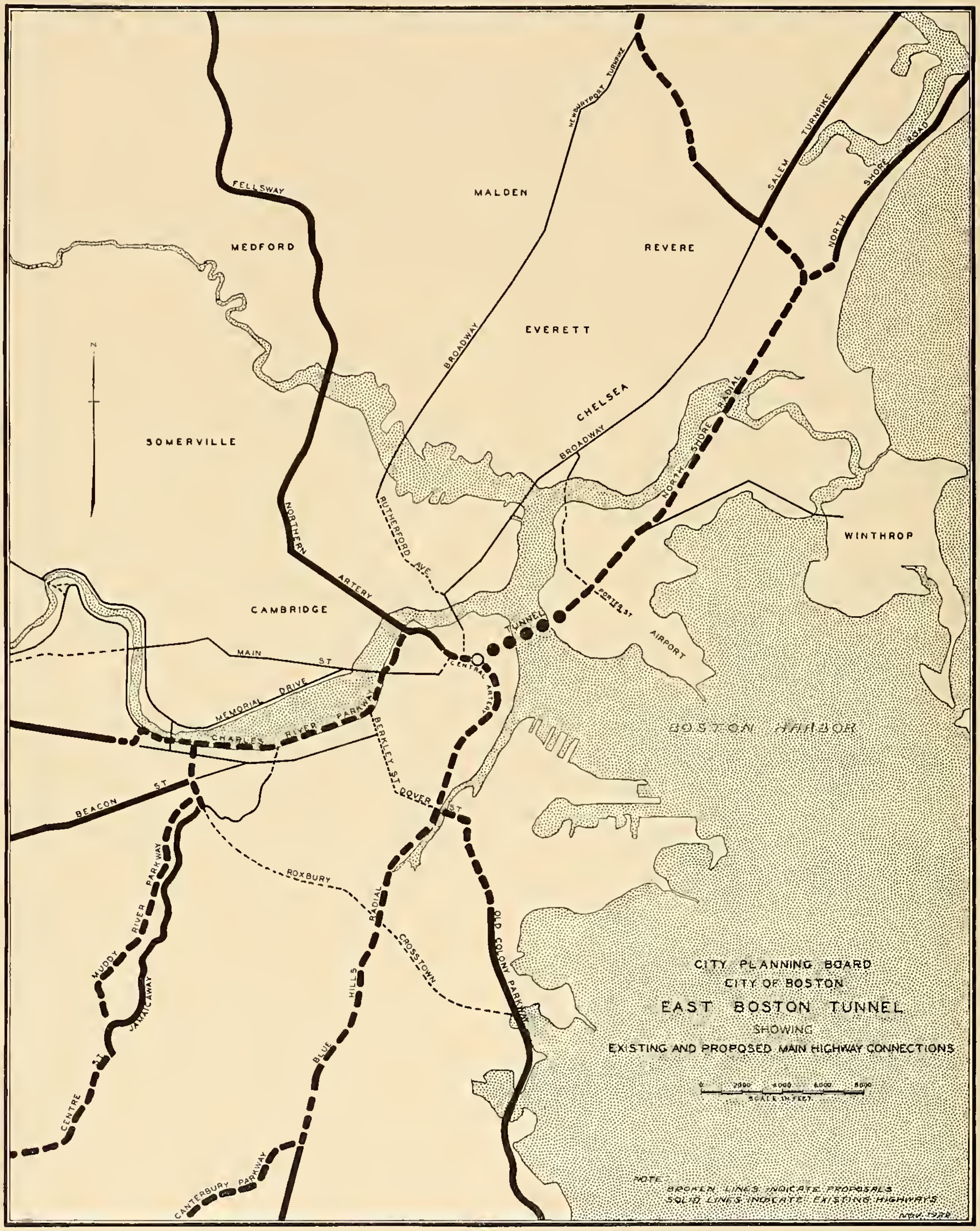


Figure 44.—Main Highway Connections with East Boston Tunnel.

The proposed North Shore Radial will give express road connection with main highways to the northeast; the Central Artery with all main highways to the west and south. The proposed Blue Hills Radial is a southerly continuation of the Central Artery.

the roadway is protected from rain and ice. Aside from cost of construction and operation the chief advantages of the bridge are that there is no ventilation problem, no danger of tieups and possible panic due to fire or breakdown, and it is undoubtedly pleasanter to ride over a bridge than through a tunnel. Moreover a splendid bridge spanning a channel is in itself a great civic asset while a tunnel is simply another traffic facility.

While, therefore, throughout this report a tunnel has been assumed, the construction of a bridge in place of a tunnel would be welcomed, assuming a satisfactory solution of the clearance problem.

Estimated Tunnel Traffic

It is assumed that the Tunnel cannot be opened for traffic before 1934. Based on an analysis of the origin and destination of traffic in the Boston region made in 1927, it is estimated that the Tunnel will carry on its opening an average of 14,300 vehicles during a 24-hour day, or a total of about 5,200,000 vehicles per year. Within two years, or by 1936, it is estimated that the yearly total will have increased to 6,400,000 vehicles. This assumes the construction of two 2-lane tunnels with adequate approaches and connections, including both the North Shore Radial and the Central Artery. It assumes also that no horse-drawn traffic will be allowed in the tunnels, and that a toll averaging 28 cents per vehicle will be charged. It assumes also that the present North Ferry will continue to operate but that the present South Ferry will be replaced by a ferry from South Boston to East Boston.

The great bulk of the tunnel traffic will be diverted from the Charlestown and Warren Bridges and only a small amount from the present ferries. The Tunnel will, however, draw a considerable amount of through traffic between North Shore towns and points south and west of Downtown Boston that now prefers to go round by way of the Prison Point Bridge or the Wellington Bridge rather than to take a shorter route through the congested centre. It is estimated that this traffic will amount to almost 20 per cent of the total tunnel traffic. When the Tunnel is in operation it will doubtless create a considerable amount of new traffic through the building up for business, industry and residence of the East Boston areas. The effect of this new traffic will, however, not be greatly in evidence until several years subsequent to the opening of the Tunnel.

The following table shows the 1927 10-hour traffic over the Warren and Charlestown Bridges and North and South Ferries, together with an estimate of the distribution of this traffic assuming the Tunnel had been opened for traffic in 1927, and also assuming a distribution for 1934, which is the earliest date on which the completion of the Tunnel can be reasonably anticipated.

Route	Actual 1927 10-hour day	Estimated distribution assuming Tunnel and South Boston Ferry	
		1927 10-hour day	1934 24-hour day
Charlestown and Warren Bridges	25,112	19,250	31,300
East Boston Tunnel	....	8,750	14,300
South Ferry	2,289	—	—
North Ferry	872	1,200	1,500
Proposed South Boston Ferry	....	1,000	2,000
Totals	28,273	30,200	49,100

An analysis of origin and destination counts furnish reliable data as to the number of vehicles desiring to travel between the various sections of the Boston region. They furnish a reliable basis for estimating the number of vehicles that will be convenienced by the construction of a new facility such as the East Boston Tunnel. They do not, however, give the basis for an estimate of the number of drivers who would be deterred from using the most convenient traffic route by a possible toll charge of 25 cents, such as may be imposed for the privilege of passing through the proposed Tunnel. In view of the alternative facilities afforded by the ferries and by the Charlestown and Warren Bridges it is believed that possibly 25 per cent of the vehicles that would otherwise use the Tunnel would be

deterred by such toll charge. This factor has been considered in the estimate of 14,300 vehicles per 24-hour day that would use the Tunnel if opened to traffic in 1934.

In estimating tunnel traffic it has been assumed that the North Ferry would be continued and that for the present South Ferry there would be substituted a ferry from the present East Boston terminus of the South Ferry to the location of Pier No. 3 of the New York, New Haven & Hartford Railroad near the Commonwealth Pier in South Boston as described in project 51. The present traffic of the two ferries is about 3,000 vehicles per day for a 10-hour day. It is estimated that about 60 per cent of this traffic would be diverted to the Tunnel leaving about 1,200 vehicles, per 10-hour day, to be carried by the North Ferry. Estimating on the basis of a 24-hour day the average daily traffic would be 1,500 instead of 1,200.

It is estimated that the proposed ferry to South Boston if opened in 1934, would carry about 2,000 vehicles per day. This traffic would consist primarily of trucking from South Boston freight and produce terminals to East Boston, Winthrop, Chelsea, Revere, and the North Shore. If the proposed South Boston Ferry is not opened the estimate of annual tunnel traffic in the year 1934 should be increased by about 600,000 vehicles.

The foregoing estimate of tunnel traffic has been conservatively made. It has not been augmented by an allowance for the growth in industry that will come to East Boston because of its greater accessibility to Boston Proper. It has not been augmented either, by the natural increase in traffic that will come without regard to industrial growth but merely because a cutting in two of travel distance or time between two communities will tend to quadruple the number of trips between them. The traffic between any two communities in the metropolitan district has been found to vary directly as the product of their motor vehicle registrations and inversely as the square of the distance between them. Undoubtedly this factor will lead to a considerable increase in the number of trips between East Boston and Downtown Boston, though it is conceded that this increase will not be nearly as great as it would be if no Tunnel toll were collected. This increase in traffic due to the Tunnel will be apparent, also, though in much less degree, in traffic to and from Chelsea, Winthrop, Revere and all North Shore communities. These increases will, however, come about gradually and will not be fully in evidence for a period of at least 10 years. They have not been considered in the estimate of tunnel traffic either for 1934 or for 1936. These estimates, and especially that for 1936, may therefore be taken as minima, assuming of course the concurrent construction of both the Central Artery and the North Shore Radial.

Amount of Toll

A 5-mile trip from Haymarket Square to Broadway, Chelsea, by way of the Charlestown Bridge and Chelsea Street now requires 30 minutes, according to the studies made by the Mayor's Street Traffic Survey. By way of the proposed North Shore Radial and the East Boston Tunnel this same trip could be made in 10 minutes, thus showing a saving of 20 minutes per trip. Assuming a saving of but 15 minutes per vehicle for each of the 5,200,000 vehicles that will use the Tunnel during the first year of its operation, and valuing the time saving at 2 cents per minute, the economic saving would be 30 cents per vehicle, or a total of $1,560,000.

It has been assumed that private passenger automobiles would be required to pay a fixed toll of 25 cents and that commercial vehicles would be required to pay a graduated toll averaging 37 cents. Assuming that 25 per cent of the vehicles using the Tunnel would be commercial vehicles, the average toll for all vehicles would be 28 cents.

It costs 5 to 6 cents a minute to operate a heavy truck; any such truck that could save 10 minutes or more by using the Tunnel could afford to pay a tunnel toll of 50 cents. It costs at least 2 cents a minute to operate a light automobile, when the time of the occupants is considered. Any such vehicle that could save $12\frac{1}{2}$ minutes by the tunnel route could afford to pay a tunnel toll of 25 cents. It is estimated that the time saving to tunnel users would be between 10 and 20 minutes and that the average time

saving would be 15 minutes. It is estimated that an average time saving of even 12 minutes would induce at least three-fourths of those who would be thus convenienced to pay a 28-cent average toll for the privilege of using the Tunnel.

Income from Tolls

Assuming an average toll of 28 cents per vehicle, the 5,200,000 that it is estimated will use the Tunnel in the year 1934 would produce an income of $1,456,000. Assuming that the annual operating cost might amount to $500,000, there would remain a surplus of $956,000 that could be applied to interest and amortization charges. The interest and amortization charges on 4 per cent 50-year bonds (which is the term authorized in the Tunnel Act) would amount to about 5 per cent on the cost of the Tunnel. $956,000 would, therefore, carry a capital investment of $19,120,000.

The above estimate of income and tolls has been based on a conservative estimate of tolls for the first 1 or 2 years of operation. During the 2-year period, 1934 to 1936, it is estimated that the annual traffic will increase from 5,200,000 vehicles to 6,400,000 vehicles. The 1936 figures can be taken as a conservative average for the first 12 years of operation. This would give an average annual income of $1,792,000. Assuming $600,000 for operation this leaves $1,192,000 or an amount sufficient for interest and amortization on a cost of $23,800,000.

Twin Tunnels Required

The capacity of two 2-lane tunnels is approximately 15,000,000 vehicles per year. The capacity of a single 2-lane tunnel with traffic moving in both directions is probably about 5,000,000 vehicles per year. With a single lane of traffic in each direction, it is necessary for all traffic to proceed at the speed of the slowest. It would probably be necessary to exclude from such a tunnel all vehicles going under 20 miles an hour. Horse-drawn vehicles would be excluded in any case, but the necessity of fixing a minimum speed would exclude from the Tunnel a great many heavy trucks that would not be able to maintain a 20-mile speed on the long grades of the Tunnel. This would be unfortunate as the heavy expense in the operation of such a truck would make it very advantageous for it to use the Tunnel whenever travel time could be materially lessened thereby.

As it is conservatively estimated the Tunnel would carry 5,200,000 vehicles in the year 1934 it is clear that a single 2-lane tunnel would be loaded to full capacity from the start. In 1936 capacity for 6,400,000 vehicles would be needed. A 3-lane tunnel, though safer from an operating standpoint would not have appreciably greater capacity than a 2-lane tunnel as the central lane would have to be reserved primarily for emergency fire and breakdown services.

The Tunnel Act of 1929 limits the expenditure for tunnel and approaches to $16,000,000. It is agreed that this amount is not adequate for twin tubes together with their immediate approaches. In view of the probable traffic it is believed that the present authorization should be sufficiently increased to cover the necessary cost of twin 2-lane tunnels.

Tunnel Approaches

In making the estimate of the tunnel traffic, certain important street improvements have been assumed. Adequate approaches at both ends of the Tunnel are, of course, essential. Inadequate approaches often seriously limit the capacity of an expensive bridge or tunnel. From the standpoint of public safety it is essential that there should be no possibility of a traffic stoppage that would serve to interrupt a continuous flow of traffic from the Tunnel.

It is recommended that the Tunnel be located between a plaza near the intersection of Porter and Chelsea Streets, East Boston, and a plaza near Hanover Street in the North End.

The intersection of Chelsea and Porter Streets seems the logical East Boston terminus on account of the possibility of creating a new major traffic route to the North Shore by widening Bremen Street and constructing a new express highway adjacent to the old Eastern Division of the Boston & Maine Railroad, that will connect in Revere with the North Shore Road, the Salem Turnpike and the Newburyport Turnpike. By widening and extending Porter Street to the southeast, there will be a splendid connection

between the Tunnel plaza and the Boston Airport. By widening Porter Street northwest to Central Square there will be a convenient connection over the Meridian Street Bridge into central Chelsea.

It is generally recognized that the Central Boston portal of the Tunnel must be somewhere in the North End. It is recognized also that to furnish an approach to a tunnel portal in this location, it will be necessary to construct a new street from Haymarket Square past the tunnel portal to Atlantic Avenue or Fort Hill Square. This will be necessary in order that traffic to and from all parts of Central Boston may have convenient access to the Tunnel, and so that through traffic from the south, southwest, and west can proceed to its destination without adding to the congestion of the central district. It is particularly important that the Tunnel be connected by an adequate express road leading southerly to the intersection of Dover Street Bridge and Albany Street, and westerly to Charles River Dam and Embankment Road. The proposed Central Artery has been designed with this purpose in view. It will have both a surface and an upper level roadway, with centrally located ramps for access to the elevated structure. The tunnel portal and plaza should be so designed with reference to this proposed Central Artery that vehicles can proceed directly by a ramp extending from the tunnel portal to the proposed upper level in the Central Artery.

It is estimated that in 1936 the upper level of the Central Artery will be carrying 45,000 vehicles during a 24-hour period, and that 12,400 of these vehicles will be moving to or from the East Boston Tunnel. In order that this large volume of tunnel traffic may proceed to the upper level roadway without stopping for cross traffic, a ramp extending from the tunnel portal to the upper level roadway is essential; and in order that the even larger volume of upper level roadway traffic shall not be held up by the entering traffic from the Tunnel it is necessary to construct an elevated traffic circle. This will permit tunnel traffic to enter the upper level roadway and proceed west or south without interrupting the flow of through traffic on the upper level.

PROJECT 2. CENTRAL ARTERY

The most serious defect in the street system of Central Boston is the lack of an adequate north-south traffic route. Washington Street is the only through street. It is but 50 feet wide throughout the most congested area. The cost of widening it to a width of 80 or 100 feet would be prohibitive. Even if the widening of Washington Street or the widening and extension of some other street through the heart of the congested area were economically feasible, it would probably be wiser to lay out a new route just outside the area of congestion so as to by-pass as much traffic as possible around the congested center, while at the same time giving much better access to that center.

The Central Artery is designed as a two-level express road extending from Nashua Street at the North Station to Kneeland Street, a distance of 7,800 feet, or almost $1\frac{1}{2}$ miles. It will have a minimum width of 100 feet. There will be a surface roadway for short distance local traffic and an upper level roadway for longer distance and through traffic. (See Fig. 51.)

Upper Level Roadway

At Kneeland Street the Central Artery will connect with the proposed Blue Hills Radial, extending south by way of Albany Street. The upper level roadway will continue south through the widened Albany Street to a point 400 feet south of Dover Street. The normal width of the upper level roadway will be 54 feet. At its southern terminus it will form a part of the proposed Blue Hills Radial and it will connect with the Old Colony Parkway via the Dover Street Bridge. There will be ramps up and down for traffic entering and leaving at Broadway and at Kneeland Street. At Beach Street owing to the existence of the Boston Elevated Railway structure there will be a break in the continuity of the upper level roadway. The upper level roadway will come down to grade at Beach Street and after crossing Beach Street at grade traffic will again be carried by ramp to the upper level. For traffic to and from the south there will be a ramp allowing entrance or exit at Congress Street. For traffic to and from the north there will be a ramp allowing entrance and exit from

FIGURE 45.—Central Artery; birdseye view from the north.

Federal Street. At Fort Hill Square there will be ramps allowing entrance and exit for traffic both north and south. The market district will be served by ramps up and down extending between Market and Commercial Streets.

At the proposed approach to the East Boston Tunnel there will be an upper level traffic circle with ramps giving access to the tunnel portal. At Haymarket Square there will be a similar upper level traffic circle with a ramp down into Washington Street North so as to take traffic to and from the Warren Bridge and the Charlestown Bridge and permit it to proceed over the upper level roadway without interrupting the continuous movement of traffic on the upper level. There will also be a viaduct and ramp from the upper level traffic circle at Haymarket Square south over a widened Washington Street to Adams Square. This ramp will cross over Hanover Street and thus relieve a difficult traffic situation at that intersection. It will permit traffic to and from the office and financial district and the market district to use the upper level of the Central Artery. It will also furnish an overcrossing for traffic between Washington Street North and Adams Square, enabling it to avoid cross traffic interference both at Haymarket Square and at Hanover Street. There will also be a ramp down from the upper level traffic circle at Haymarket Square into Merrimac Street, permitting traffic to and from Chardon and Cambridge Streets to enter or leave the upper level. The northerly terminus of the upper level roadway will be about 100 feet south of Causeway Street opposite Nashua Street.

The Central Artery will give a direct connection between the Northern Artery, the Charlestown Bridge and the East Boston Tunnel, on the north, and the proposed Blue Hills Radial and the Old Colony Parkway, on the south. It will also furnish a connection between the three South Boston bridges and the Charlestown, Warren and Charles River Dam Bridges. It will give a direct outlet to the west and southwest through the proposed Charles River Parkway. The upper level roadway will attract to itself practically all the through traffic that now clogs the streets of Central Boston.

The Central Artery is designed also to serve a large amount of traffic having an origin or destination within Central Boston. It will permit practically all traffic to and from the wholesale district, the market district, the waterfront, the North Station, the South Station, the North End and the West End to by-pass the congested retail and office districts. It will also permit a considerable portion of the vehicles to and from the retail and office districts to reduce the length of that portion of their trips within the most congested areas. For example, coming to the office and financial districts from the south, vehicles, instead of coming through Washington Street, will find it quicker to take the upper level roadway to Congress Street.

As a matter of first impression the erection of additional elevated structures in Downtown Boston is very objectionable. The comparison of course is with the present noisy and ugly elevated railway structures. It must be remembered, however, that the proposed upper level roadway will occupy the central portion only of a broad avenue; that it will be but two thirds the height of the elevated structure in Atlantic Avenue; that great care will be taken in its design to make it attractive and to reduce noise and vibration; that it will be used by motor vehicles and not by railroad trains; that it is probable that hard tire vehicles would be excluded; that a vehicular subway would interfere with sewers and with present and future rapid transit subways; and that it is not physically and economically possible to take care of the large volume of traffic on the street surface.

Cost and Economic Saving

The upper level roadway will have a width of 54 feet and could accommodate 60,000 vehicles a day, or 21,900,000 a year. Based on 1927 traffic it is estimated that 30,000 vehicles will use the upper level during each 24-hour period, or 10,950,000 a year. It is estimated that traffic in Boston Proper will increase 50 per cent during the 9-year period 1927 to 1936. In 1936, therefore, it is anticipated that the upper level will carry a daily total of 45,000 vehicles, or a yearly total of 16,425,000. By 1965 the traffic will

probably have increased to the approximate capacity of the upper level roadway, 21,900,000 vehicles.

The estimated cost of the Central Artery is as follows:

Property	$22,400,000
Surface Roadway	600,000
Upper level	5,000,000
Total	$28,000,000

The above includes the cost of widening Washington Street North from Haymarket Square to Beverly Street and the construction of a ramp from Beverly Street to the elevated circle at Haymarket Square. The cost does not include the property cost of the circle at the tunnel portal, nor of the land for the Central Artery from Hanover Street to Haymarket Square, as this is being included in the cost of the East Boston Tunnel.

From studies of the speed of travel on the various downtown streets made by the Mayor's Street Traffic Survey it is estimated that vehicles using the upper level roadway in going from Kneeland Street to Nashua Street will, on the average, save 6 minutes per trip. The $1\frac{1}{2}$ mile trip over the upper level roadway at a speed of 30 miles an hour will take but 3 minutes. To travel between the same points over any existing routes would take an average of from 10 to 12 minutes. This shows a saving in time for the upper level roadway of 7 to 9 minutes.

A considerable number of those using the upper level roadway, however, would travel out of their way to do so. Their net saving in time would therefore be less than that above indicated. It is estimated, for example, that an automobile going from Charles and Boylston Streets to Haymarket Square would save but 1.7 minutes, on the average, by using the upper level roadway. It would have to travel 9,000 feet, whereas the more direct, though slower, route is but 5,000 feet. It is reasonable to assume, therefore, that the average net time saving in traveling the full length of the upper level roadway would be somewhat less than the 7 to 9 minutes above indicated, and 6 minutes has been taken as a conservative figure. A time saving of 6 minutes for a mile and a half is at the rate of 4 minutes a mile. Assuming that the average value of a traffic minute, based on the time of passengers and the cost of operating an automobile or motor truck, is but 2 cents, there would be an average saving per vehicle mile of 8 cents. This for the 24,000,000 vehicle miles that it is estimated will represent a year's travel over the upper level roadway by 1936, makes an aggregate annual economic saving of $1,920,000.

In addition to this direct economic saving to the users of the upper level roadway of $1,920,000 a year, there will be an even greater annual saving to all vehicles using the downtown streets through the traffic relief afforded by taking out of the congested centers trips aggregating 66,000 vehicle miles daily. The total economic saving resulting to the users of downtown streets from the upper level roadway is conservatively estimated at $3,800,000 a year, or 13.6 per cent on the permanent investment of $28,000,000 required for the Central Artery.

While the upper level roadway will carry by far the heaviest traffic burden the surface of the Central Artery will carry a heavy local traffic and furnish a much needed connection between various nearby centers. The daily surface traffic will average throughout the length of the Central Artery about 9,000 vehicles, based on 1927 traffic, and 12,000 vehicles based on estimated 1936 traffic. This will mean that about 36,000 vehicles, daily, will in 1936 use the surface roadway of the Central Artery for at least a part of their journey.

Moreover, a large share of the effectiveness of the upper level roadway in attracting traffic will be due to the existence of this adequate surface route carrying traffic to and from the elevated ramps. The wide surface roadway will also give splendid access to all abutting properties and thus promote the erection of new buildings and the spread of business and values throughout a wider area.

Relation to Atlantic Avenue

In considering the Central Artery, with its proposed upper level roadway, the question naturally arises as to whether the great expense of this route could not be largely saved by converting the existing elevated railway on Atlantic Avenue

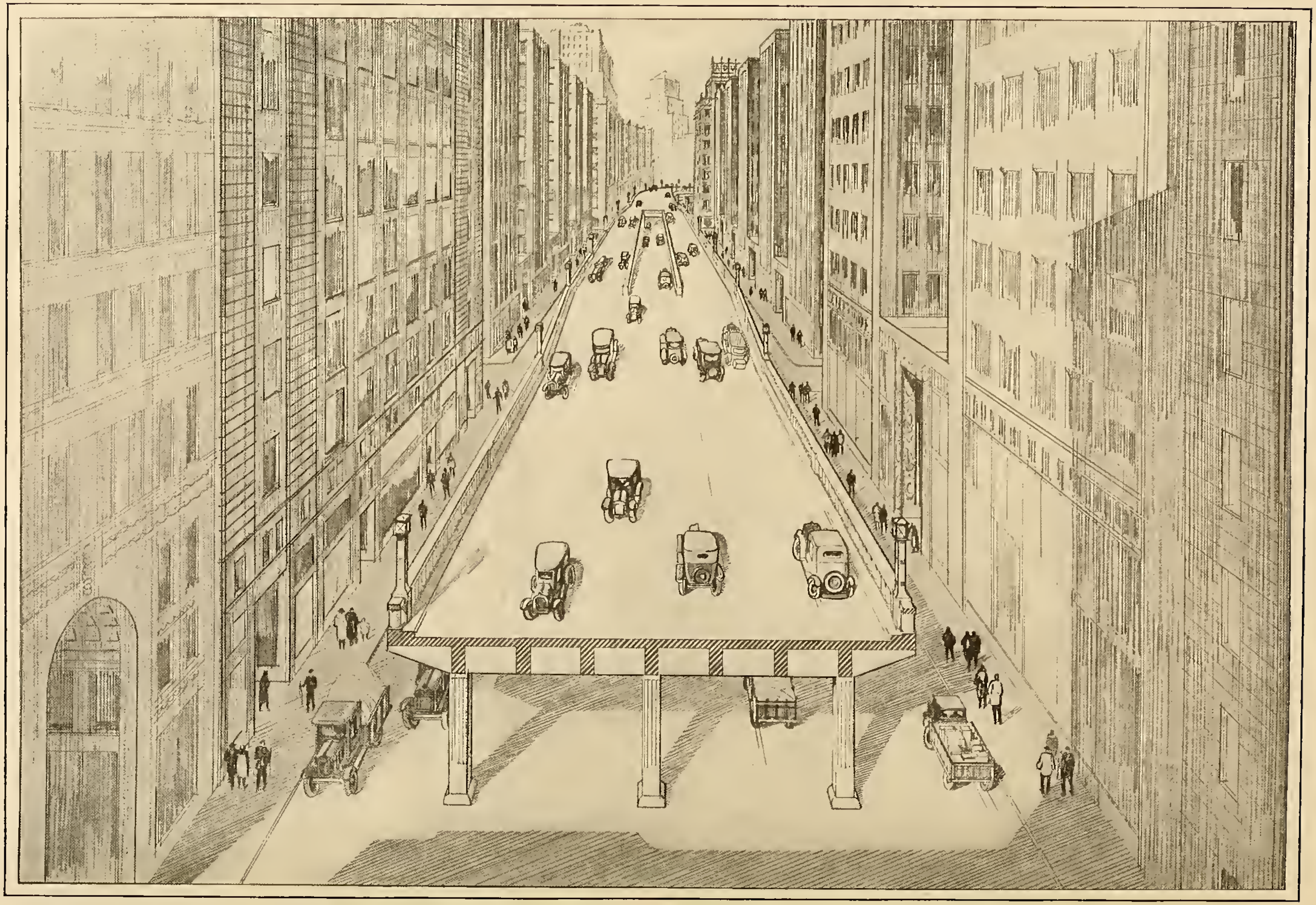


Figure 46.—Typical View of Proposed Central Artery Showing Upper Level Roadway.

The upper level roadway is designed for six lanes of fast moving vehicles; the surface roadway for six lanes of slower moving vehicles, as well as space for vehicles standing at the curbs.

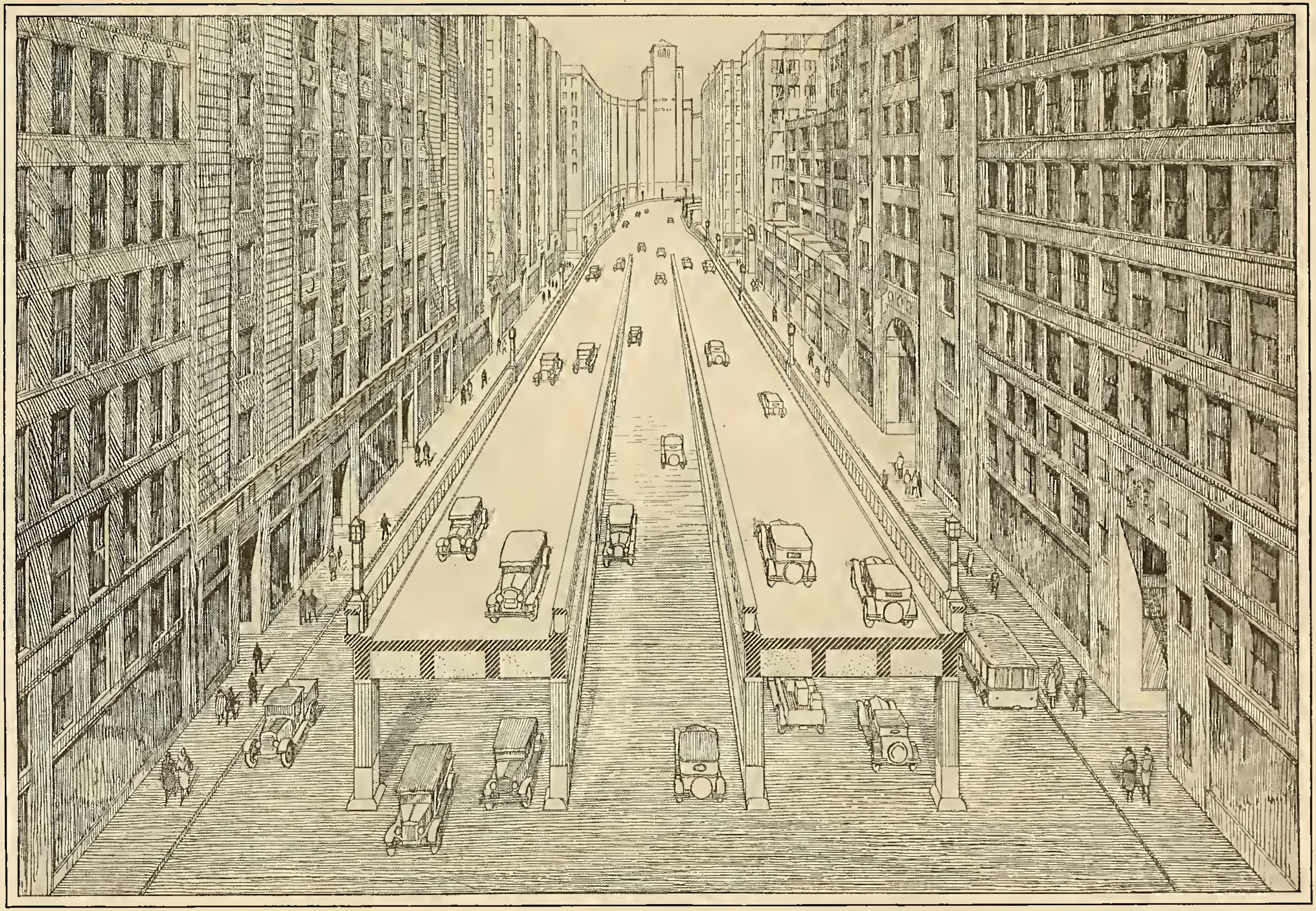


Figure 47.—View of Upper Level Roadway Showing Approach Ramp.
Two-lane ramps for entering and leaving the upper level roadway are located at convenient intervals.

into an elevated roadway, and connecting it through a new street with the East Boston Tunnel and the Charlestown and Warren Bridges. At its southerly end the proposed Atlantic Avenue elevated roadway would extend across the Boston and Albany Railroad yards to the intersection of Albany Street and Broadway. This proposal would require the cutting of a new street from Atlantic Avenue at Broad Street to Haymarket Square, the securing of a right of way across the Boston and Albany freight terminals and the purchase of the elevated structure and rights of the Boston Elevated Railway. The length of the Boston Elevated Railway structure between Castle Street and Charlestown Bridge is 12,600 feet, only about 3,000 feet of which lies within the portion of Atlantic Avenue that would be used for the proposed elevated roadway. This portion of the elevated roadway would have to be largely reconstructed to carry a 36-foot roadway. Less than one fourth of the present elevated structure would be of utility in the construction of the elevated roadway. If ramps were constructed in Atlantic Avenue about 800 feet more of the present structure would have to be scrapped. One disadvantage in the use of the present elevated structure is that it would bring the elevated roadway surface about 27 feet above the street surface. This is 9 feet more than would be required for an ordinary elevated roadway and proportionately increases the cost of providing ramps down to the street surface. It is believed that if an elevated roadway is to be built in Atlantic Avenue it will be found better and cheaper to scrap the existing railroad structure and build a new viaduct specially designed for traffic use.

Unless ramps are constructed in Atlantic Avenue the proposed elevated structure could be used only by through traffic traveling from end to end of the structure. This would, of course, materially reduce the utility of the elevated roadway. If one or more ramps were provided in Atlantic Avenue, Atlantic Avenue would have to be widened, at heavy cost. These ramps would, moreover, interfere quite seriously with the usefulness of Atlantic Avenue. The full present capacity of Atlantic Avenue is needed to serve the business and commerce of the waterfront.

Another point of public policy that should be considered with reference to the future of the Atlantic Avenue waterfront is the advisability of removing practically the only good means of mass passenger transportation to the waterfront. Will not the discontinuance of the elevated railway handicap the future development of the waterfront?

An elevated roadway as proposed on Atlantic Avenue would take a considerable amount of through traffic off the surface of Atlantic Avenue and of other streets in the downtown district. As far as the through traffic from north to south is concerned, the Atlantic Avenue elevated roadway could serve about as well as the proposed upper level roadway in the Central Artery. The Atlantic Avenue elevated could, however, attract to itself not more than half the traffic that would be attracted to an upper level roadway located as proposed in the Central Artery. By building the upper level roadway as a part of the Central Artery, provision can be made for access to the upper level roadway at convenient points so as to serve a maximum amount of traffic and give a maximum of relief to the congested centers.

An elevated roadway from Nashua Street to Kneeland Street via Portland and Merrimac Streets, Haymarket Square, the East Boston Tunnel portal and thence to and along Atlantic Avenue would, it is estimated, cost 75 per cent as much as the proposed Central Artery and carry less than 50 per cent as much traffic. The resulting economic saving in traffic relief represents a return of 9 per cent on the cost of the project in the case of the Atlantic Avenue location and 13.6 per cent in the case of the Central Artery. The rate of return on the Central Artery will be almost 50 per cent greater than on the Atlantic Avenue location.

There is an undoubted need for a new north-south highway by-passing present centers of congestion. There is also need for an elevated express road to carry through traffic across the downtown district. By combining these two requirements a much more adequate facility can be secured than by attempting to solve them separately. By this combination the utility both of the elevated roadway and of the new thoroughfare is increased. While it might be

difficult to justify the expenditure of $23,000,000 for a new surface artery between Kneeland Street and Nashua Street, this expenditure, together with the additional expenditure of $5,000,000 necessary to build an upper level roadway, is fully justified by the anticipated traffic that this great thoroughfare will carry.

Estimated Traffic

It is estimated that in 1936 the upper level of the Central Artery will carry an average traffic of 45,000 vehicles on the average 24-hour day. The total number of vehicles entering and leaving the various ramps of the upper level will naturally be very much in excess of 45,000. It is estimated that 168,800 vehicles will go on or off. As each vehicle is here counted twice this represents but 84,400 vehicle trips. Of these, 25,600 will represent traffic that will not stop in the central district, and 58,800 will represent vehicles using the upper level roadway in making a trip to or from some portion of the central district. While a large share of the 25,600 through trips could be accommodated by an elevated roadway located in Atlantic Avenue, only a very small portion of the 58,800 vehicles using the upper level roadway for access to the central district would be able to utilize an Atlantic Avenue elevated roadway. In addition, the surface roadway of the Central Artery would in 1936 carry an average of 12,000 vehicles per 24-hour day. This would mean fully 36,000

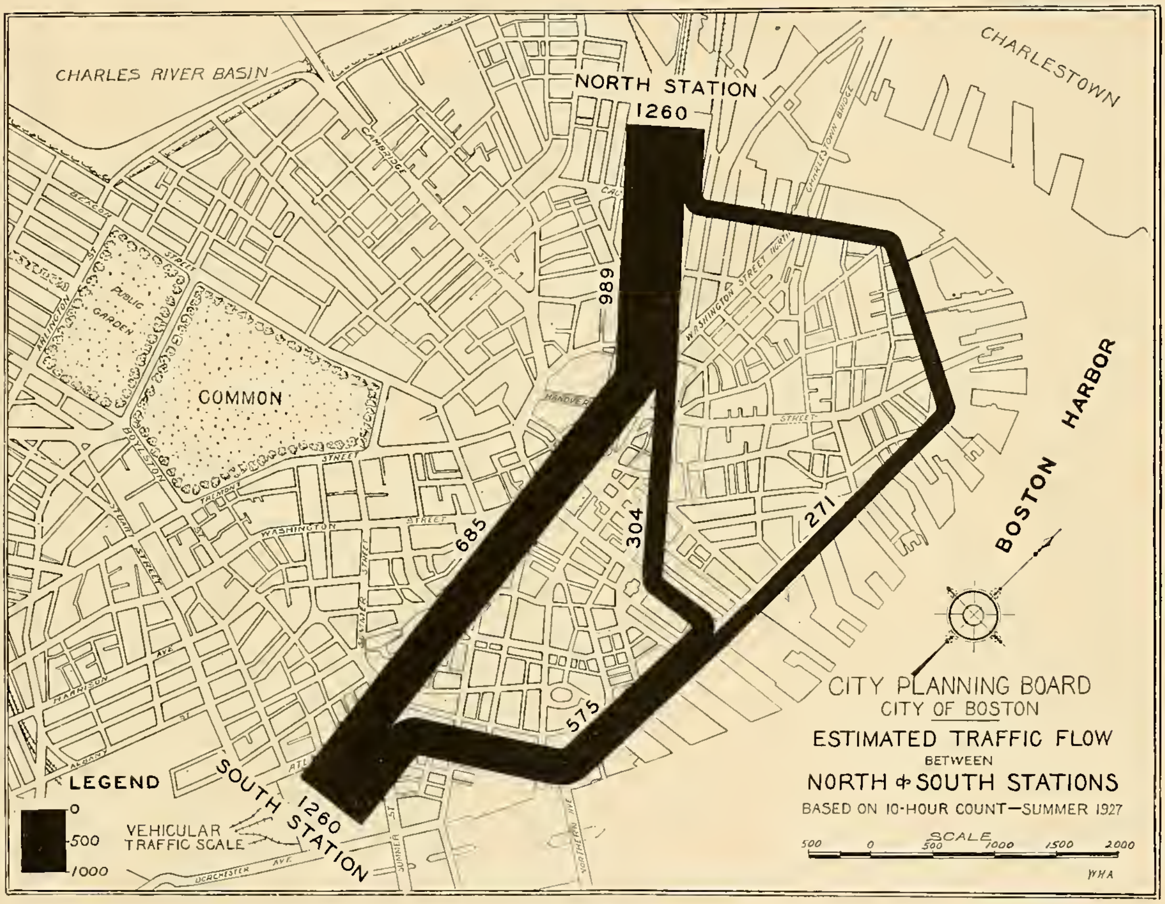


Figure 48

The upper level roadway of the Central Artery will afford a good route for the traffic between the North and South Stations and thus relieve congestion on Federal, Devonshire and Washington Streets and in Haymarket Square.

vehicle trips over some part of the surface roadway, thus making a total for both surface and upper level of 120,000 vehicle trips per 24-hour day in 1936.

The accompanying table shows the estimated 24-hour traffic for 1936 going on and off the upper level of the proposed Central Artery at each ramp. 44,000 vehicles will, it is estimated, enter or leave the upper level at Beach Street; 17,200 at either Federal or Congress Street; 23,200 at Fort Hill Square; 10,400 at South Market Street or Commercial Street; 12,400 at the East Boston Tunnel; 9,400 at the ramp extending from Haymarket Square to Adams Square through Washington Street; 20,000 at the ramp north from Haymarket Square, serving traffic to the Charlestown and Warren Bridges; and 29,600 at the northerly terminus of the upper level roadway near Causeway Street. Fort Hill Square is shown to be especially well located to serve as a distributing point for upper level roadway traffic to South Boston, the Atlantic Avenue waterfront, and the office and financial district.

Table Showing Estimated 24-Hour Traffic for 1936 Going On or Off the Upper Level Roadway of the Proposed Central Artery

Location of Ramp	Number of vehicles, 1936, 24-hour
Beach Street	44,000
Federal Street	7,800
Congress Street	9,400
Fort Hill Square, West	9,600
Fort Hill Square, East	13,600
South Market Street and Commercial Street	10,400
East Boston Tunnel	12,400
Washington, near Adams Square	9,400
Washington, near Beverly Street	20,000
Chardon Street	2,600
South of Causeway Street	29,600
Total on or off	168,800
Total vehicle trips	84,400

Importance to Central District

An analysis made by the Mayor's Street Traffic Survey of traffic using Tremont, Washington, Devonshire and Congress Streets indicates that 41.7 per cent of the present traffic does not properly belong there. Of this 41.7 per cent, 20.4 or almost one half are vehicles that have neither an origin nor a destination in the central business district. It is clear that all of this through traffic would use the upper level of the Central Artery. In addition a very large share of the other misrouted vehicles having an origin or destination within the central district would find in the Central Artery their most obvious and convenient route.

Miller McClintock in his Boston Traffic Report stresses the need of an additional traffic road between the South and North Stations. He states that the Atlantic Avenue route is overburdened and that the short-cut route through Federal, Congress and Washington Streets brings through the heart of the office and retail district a large burden of traffic that does not belong there.

It has been suggested that the need for the Central Artery is dependent on the permanency of the present department store district, and that if that should move west to the Park Square district the need for this new artery would no longer exist. A removal of the department stores from their present location would lessen the present urgency for the new route but would not to any material degree lessen its permanent value and necessity as a part of a comprehensive thoroughfare plan.

If the department stores move away, their present strategic location will be gradually absorbed by an expansion of the office and financial district. The present wholesale districts will remain and expand and the North and South Stations will continue to draw a heavy traffic. An adequate north-south street should be provided to serve the central district whether the department stores go or stay.

In 1925 the assessed value of land and buildings in the central district was $852,240,000, or 50.5 per cent of the total assessed values for the entire city. The central district comprises the area north and east of Kneeland and Charles Streets. It is the section that would be particularly benefited by the Central Artery. The immense saving to vehicle owners and operators due to the construction of the Central Artery

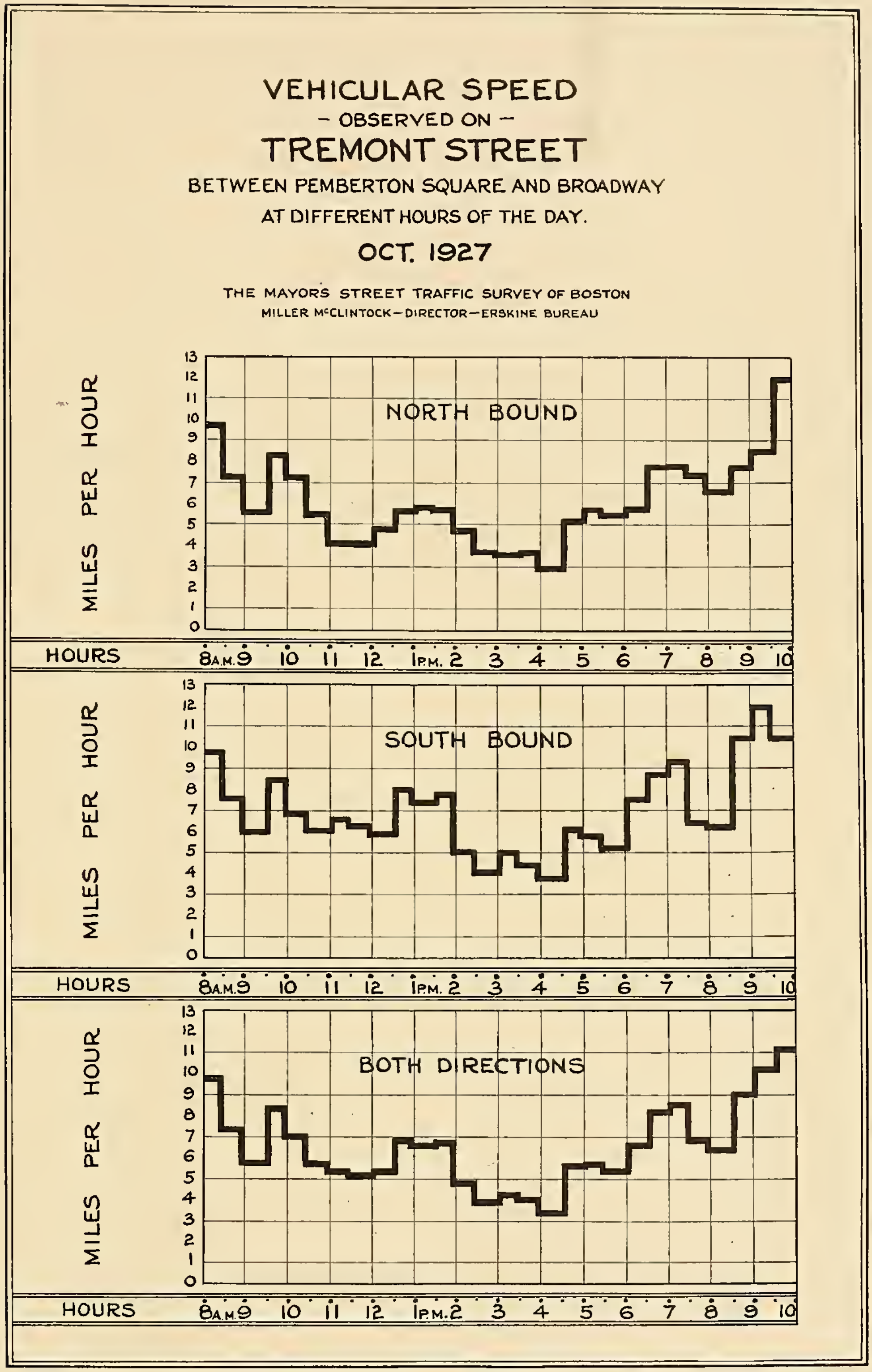
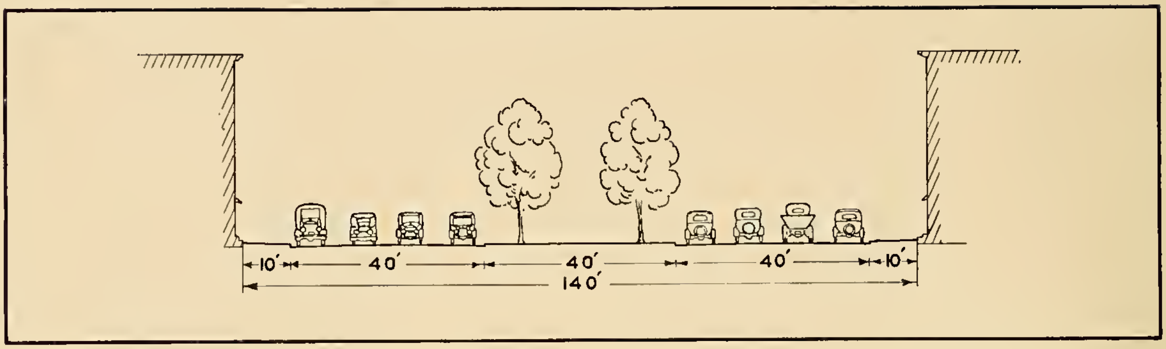
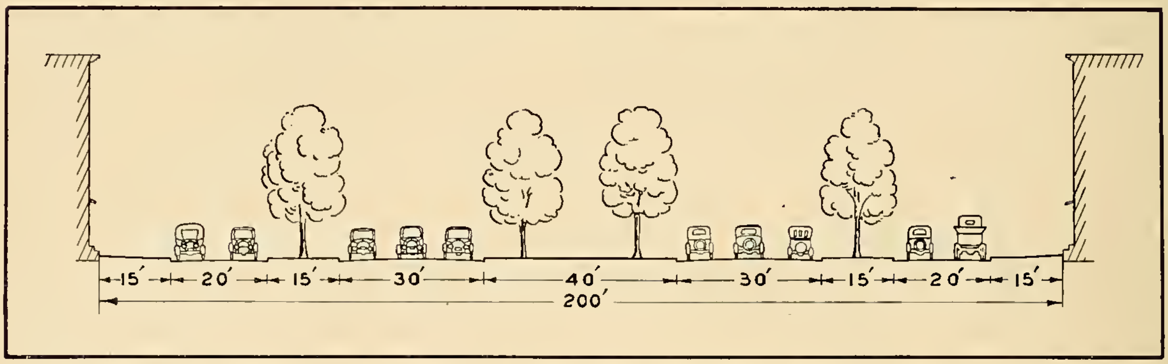

VEHICULAR SPEED
- OBSERVED ON -
TREMONT STREET
BETWEEN PEMBERTON SQUARE AND BROADWAY
AT DIFFERENT HOURS OF THE DAY.
OCT. 1927
THE MAYOR'S STREET TRAFFIC SURVEY OF BOSTON
MILLER McCLINTOCK—DIRECTOR—ERSKINE BUREAU
MILES PER HOUR
NORTH BOUND
SOUTH BOUND
BOTH DIRECTIONS
HOURS
8A.M. 9 10 11 12 1P.M. 2 3 4 5 6 7 8 9 10

Figure 49



The typical express road cross section as recommended in the Plan for the Blue Hills Radial and other routes is 140 feet wide. It has two 40-foot roadways and a 40-foot central reservation. This provides six lanes for vehicle movement—three in each direction—and space at each outside curb for standing vehicles. The traffic lane next to the lane for standing vehicles will be used both by slower moving through vehicles and by vehicles going to and from the abutting buildings.

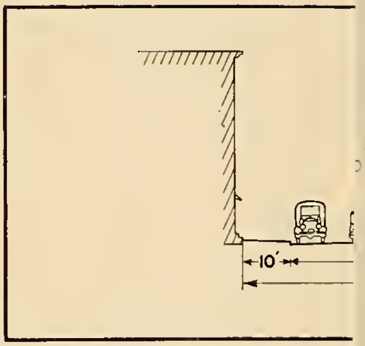


Ideally the express road should be about 200 feet wide so as to provide for two side roadways for local traffic and to give access to abutting property without interfering with through movement. This gives in each of the two central roadways three 10-foot lanes for fast moving vehicles; and in each of the two side roadways one lane for slow moving vehicles and standing room at the curb for trucks and automobiles.

Figure 50.—Express Road Cross Sections

FIGURE 51.—Central District Projects.

Figure 51.—Central District Projects.



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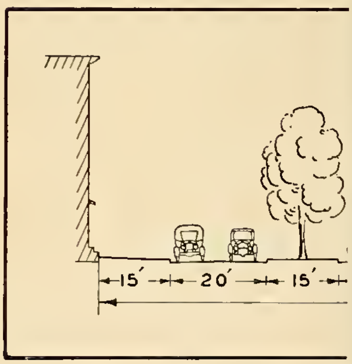

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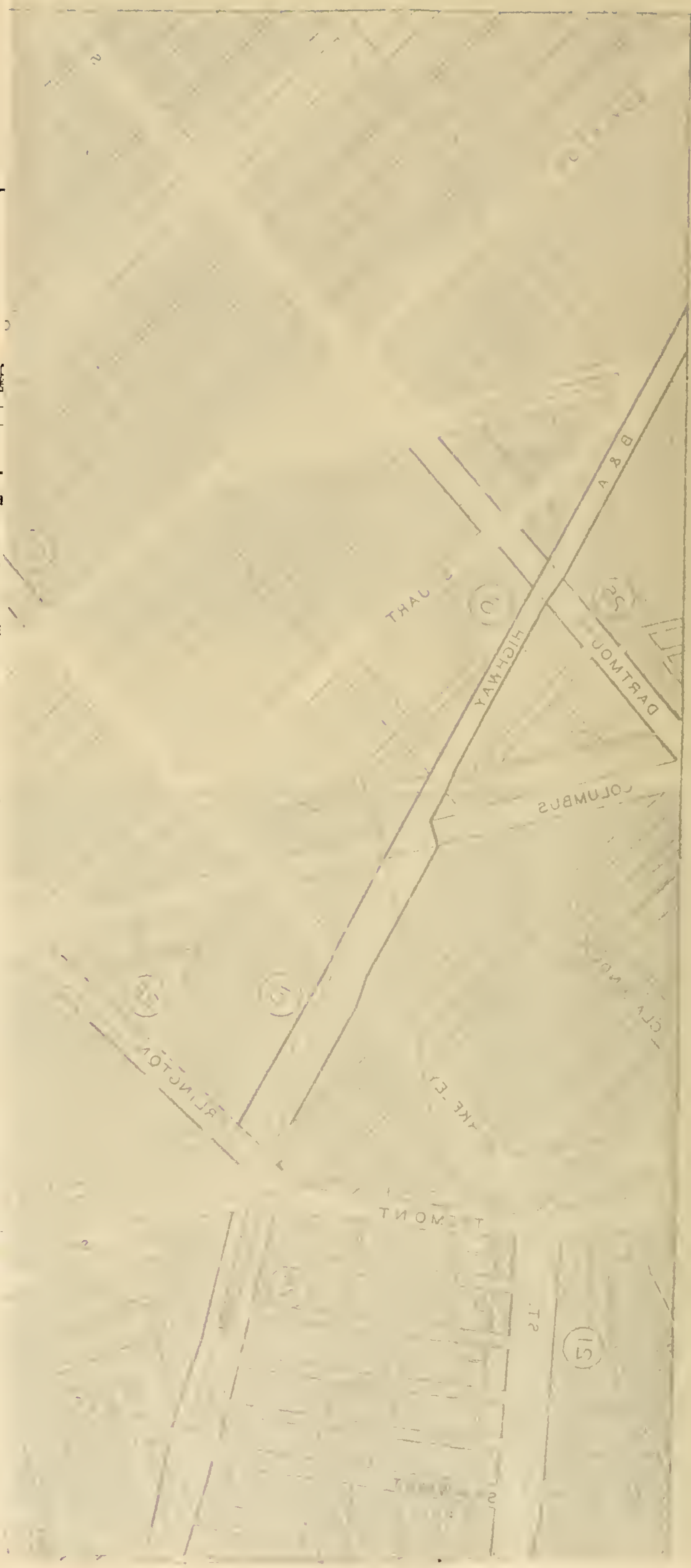


would be reflected in increased profits to all doing business in the central district and these increased profits would in turn be reflected in new buildings and in increased or stabilized property values.

The estimated cost of the Central Artery, $28,000,000, is but 3.2 per cent of the assessed value of the central district. Though the amount is large, it is not too high a price to pay for the conservation of the enormous total of property and business values immediately concerned. Nor is the amount greater in proportion than that proposed by the construction program for other parts of the city.

A toll of six cents collected from each vehicle entering the elevated roadway would be more than sufficient to cover carrying charges on the bonds issued for the Central Artery. Such a toll would probably be paid by 90 per cent of the possible number of users without serious protest. Its collection would involve practical difficulties, however, and it would probably be unwise even if these practical difficulties could be overcome. But the fact that so many vehicles would use the elevated roadway that this small toll would be adequate to cover carrying charges on the entire cost of the Central Artery is a striking indication that the cost, however great, is small in comparison with the resulting economic benefits.

An organic defect at the very heart and center of the community's circulation system cannot be ignored. Until remedied it will slow down and weaken all the processes that go to make up the life of the community as a whole.

PROJECT 3. BLUE HILLS RADIAL

A glance at the traffic flow map (Fig. 1) shows a very heavy traffic on Blue Hill Avenue between Mattapan Square and Seaver Street. Along Blue Hill Avenue, north of Seaver Street, the traffic is only about one third as heavy as it is opposite Franklin Park, and only about one fourth as heavy as it is near Mattapan Square. A large amount of traffic turns from Blue Hill Avenue into Columbia Road and another large volume of traffic turns into Seaver Street. A large proportion of this traffic is destined for Central Boston and could be more directly routed through Blue Hill Avenue, Hampden and Albany Streets. A considerable amount of traffic is also deflected from Blue Hill Avenue to take a roundabout course to Central Boston by way of Morton Street, the Riverway and Commonwealth Avenue. This deflection in the normal flow of traffic is caused by the narrow width of Blue Hill Avenue and Hampden Street, between Washington Street at Grove Hall and Massachusetts Avenue.

Blue Hill Avenue is now 120 feet in width from Mattapan to Washington Street at Grove Hall. About 600 feet north of Washington Street Blue Hill Avenue narrows to 60 feet, and further north, at Stafford Street, to 50 feet. Hampden Street, which is its natural continuation from Dudley Street north to Albany Street is but 45 feet wide. Albany Street is 80 feet wide from Hampden Street to Broadway. Between Broadway and Kneeland Street Albany Street is but 50 feet in width.

As it would be unduly expensive to widen Blue Hill Avenue to give it an adequate width, it is proposed to cut through a new street generally paralleling Blue Hill Avenue and Hampden Street from the present intersection of Blue Hill Avenue and Washington Street to Albany Street. It is proposed that Albany Street shall be widened to Kneeland Street, and at that point flow into the proposed Central Artery, thus securing a direct connection with Central Boston, the proposed East Boston Tunnel, the Charlestown and Warren Bridges and the new Nashua Street approach to the Charles River Dam and the Northern Artery.

The Blue Hills Radial will extend from a point 500 feet north of Seaver Street on Blue Hill Avenue to Kneeland Street, a distance of 17,500 feet. It will be an express road 140 feet in width from Washington Street, Grove Hall, to a point near Dover Street and 120 feet in width from Dover Street to Kneeland Street. Grades will be separated at the most important intersections and the design will be such as to permit the cross traffic of the minor streets to weave in with the through traffic and cross to its destination without interrupting the continuous flow of through traffic. (See Figs. 5 and 6.)

The through traffic of the Blue Hills Radial will be carried on overpasses 60 feet in width

FIGURE 52.—NORTH PORTION OF BLUE HILLS RADIAL (PROJECT 3) EXTENDING FROM CENTRAL ARTERY (PROJECT 2) AT KNEELAND STREET ALONG ALBANY STREET TO DOVER STREET BRIDGE.

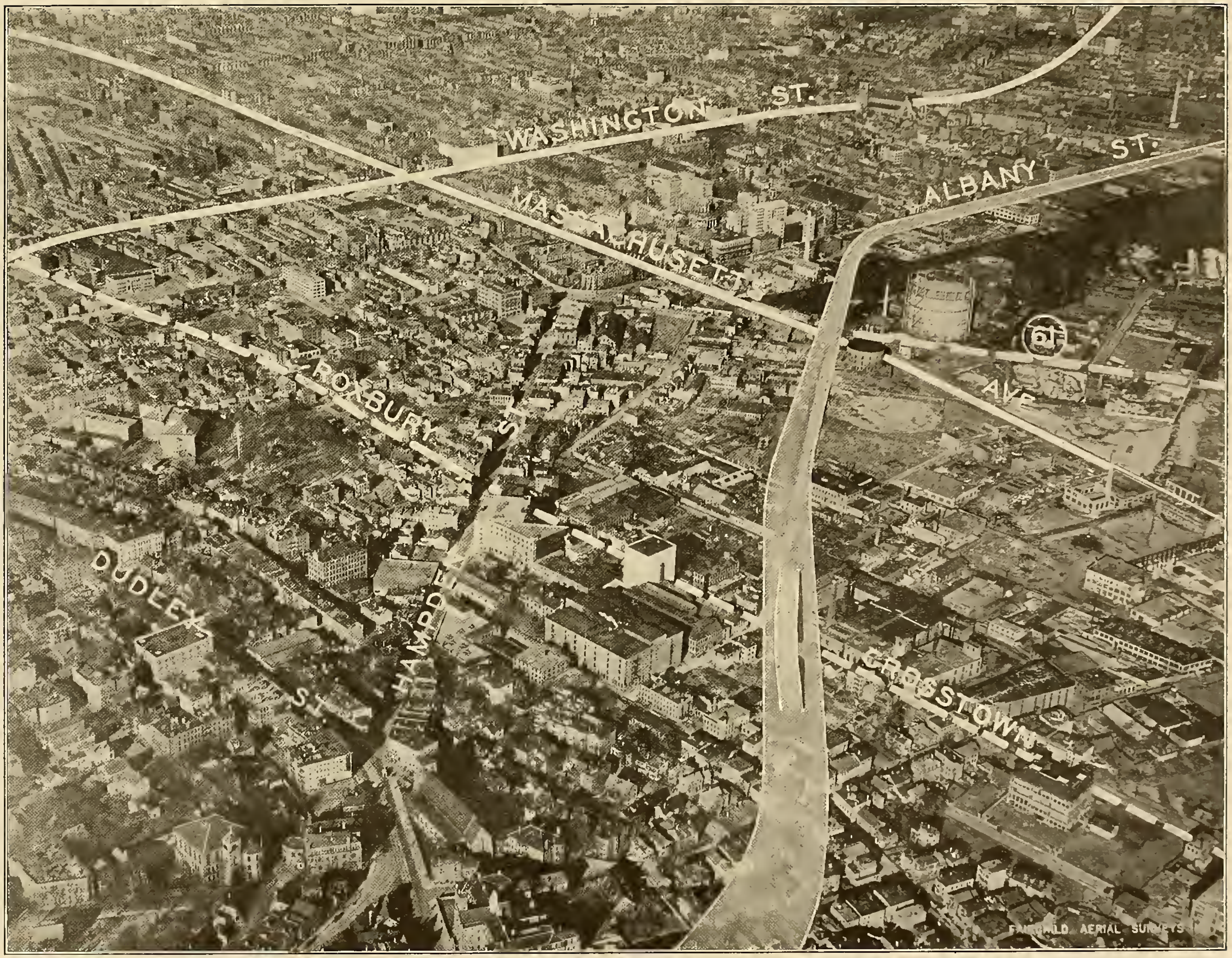


Figure 53.—Portion of Blue Hills Radial Showing Crossing of Massachusetts Avenue and Roxbury Crosstown (Project 5).

across the proposed Roxbury Crosstown route and Massachusetts Avenue and by underpasses at Dudley Street and at Washington Street.

From 400 feet south of Dover Street to the proposed Central Artery at Kneeland Street, a distance of 3,100 feet, the Blue Hills Radial will be a two-level street, having a centrally located upper level roadway 54 feet in width carrying through traffic over Dover Street, Broadway and Kneeland Street, thus constituting a southerly extension of the upper level of the Central Artery.

The general cross-section of the Blue Hills Radial provides for two 40-foot roadways separated by a central planting strip 40 feet in width. There are also two 10-foot sidewalks. Each of the 40-foot roadways will be used for one-way traffic.

Aside from six important cross-routes, the Blue Hills Radial is crossed only by minor streets. Under the plan proposed this traffic of the minor streets will not be allowed to cross directly but will be required to weave in with the through traffic and proceed for 100 or more feet before turning across the central planting strip and thence through the parallel roadway to the street desired. The central planting strip will extend across these minor street intersections and thus require the cross traffic to make a semi-rotary movement. (See Fig. 5.)

This method gives continuous movement for the through traffic on the Blue Hills Radial and only slightly inconveniences the cross traffic. The advantages of an express road without grade crossings is secured without the expense of numerous under or overpasses.

To safeguard children going to and from the John Winthrop School and Playground a pedestrian underpass or overpass should be constructed at Brookford Street.

The Blue Hills Radial when completed will form the most important and heaviest traffic route from Boston Proper to Roxbury, Dorchester, Milton and the south. It will be supplemented by Old Colony Parkway, serving the easterly portion of Dorchester, Quincy, and the South Shore. These two trunk line routes will adequately serve the traffic needs of this large sector of the city not only for the present but for many years to come. Moreover, the upper level roadway extending from the Central Artery to Dover Street will furnish a splendid approach to the Old Colony Parkway via the Dover Street Bridge, as well as to the proposed elevated roadway over the Boston and Albany tracks via Castle Street. The construction of the Blue Hills Radial will also relieve traffic conditions on the Riverway and Commonwealth Avenue, as a considerable amount of traffic from Dorchester and Milton now uses Morton Street and the Riverway and enters Boston Proper through Commonwealth Avenue.

In 1927 the traffic count showed about 12,000 vehicles in a 10-hour period on the section of Blue Hill Avenue between Morton Street and Columbia Road. The estimated distribution of traffic, based on the proposed Thoroughfare Plan and the amount of traffic existing in 1927, shows that the section of the Blue Hills Radial between Franklin Park and Dudley Street will carry about 12,000 vehicles per 10-hour day; between Dudley Street and Dover Street, 17,000; and between Dover Street and Kneeland Street, 26,000. It seems, therefore, that it is conservative to take 14,000 vehicles per 10-hour day as the average traffic that will be carried by the Blue Hills Radial in the proposed new section extending from Grove Hall to Kneeland Street. Based on a 24-hour day instead of a 10-hour day, and allowing for seasonal variations in traffic volume this would mean a daily average of 20,000 vehicles. Looking ahead only to 1936, this number will have increased to 30,000 vehicles, or more than 10,000,000 vehicles per year.

The economic saving to the 10,000,000 vehicles that it is estimated will use the Blue Hills Radial between Grove Hall and Kneeland Street may be computed on the basis of the value of the time saved to each vehicle.

Actual checks have shown that vehicles traversing the Albany, Hampden, Blue Hill Avenue route at the present time cannot do better than an average of 12 miles an hour. The new route, being without crossings at grade, could pass vehicles at the average speed of 30 miles an hour. At 12 miles an hour the time required to travel the 18,500 feet between Seaver Street and Kneeland Street is 17.5 minutes. On the new route at 30 miles an hour the time required would be but 7 minutes, showing a saving of 10.5 minutes per trip.

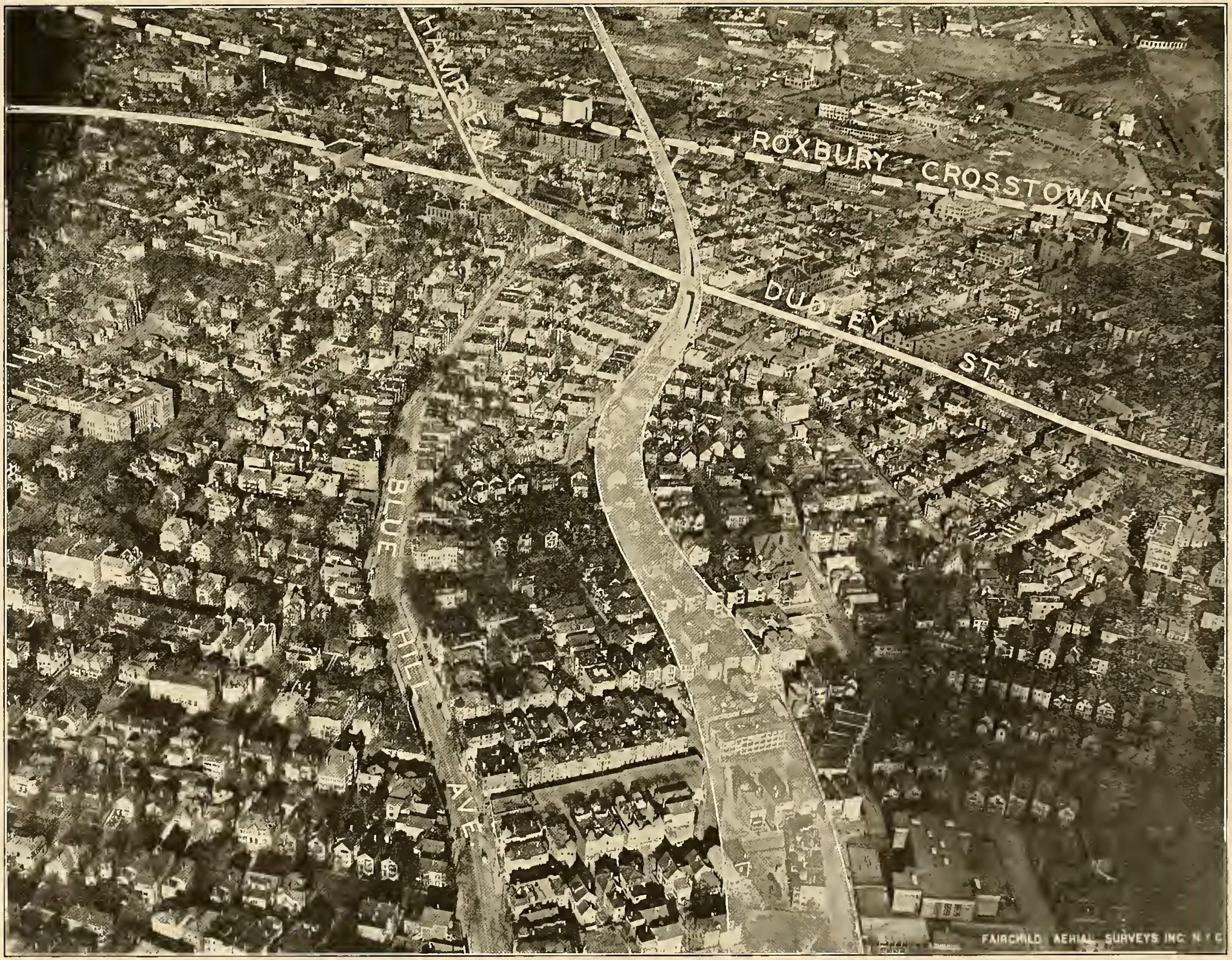


Figure 54.—Portion of Blue Hills Radial Showing Underpass at Dudley Street.

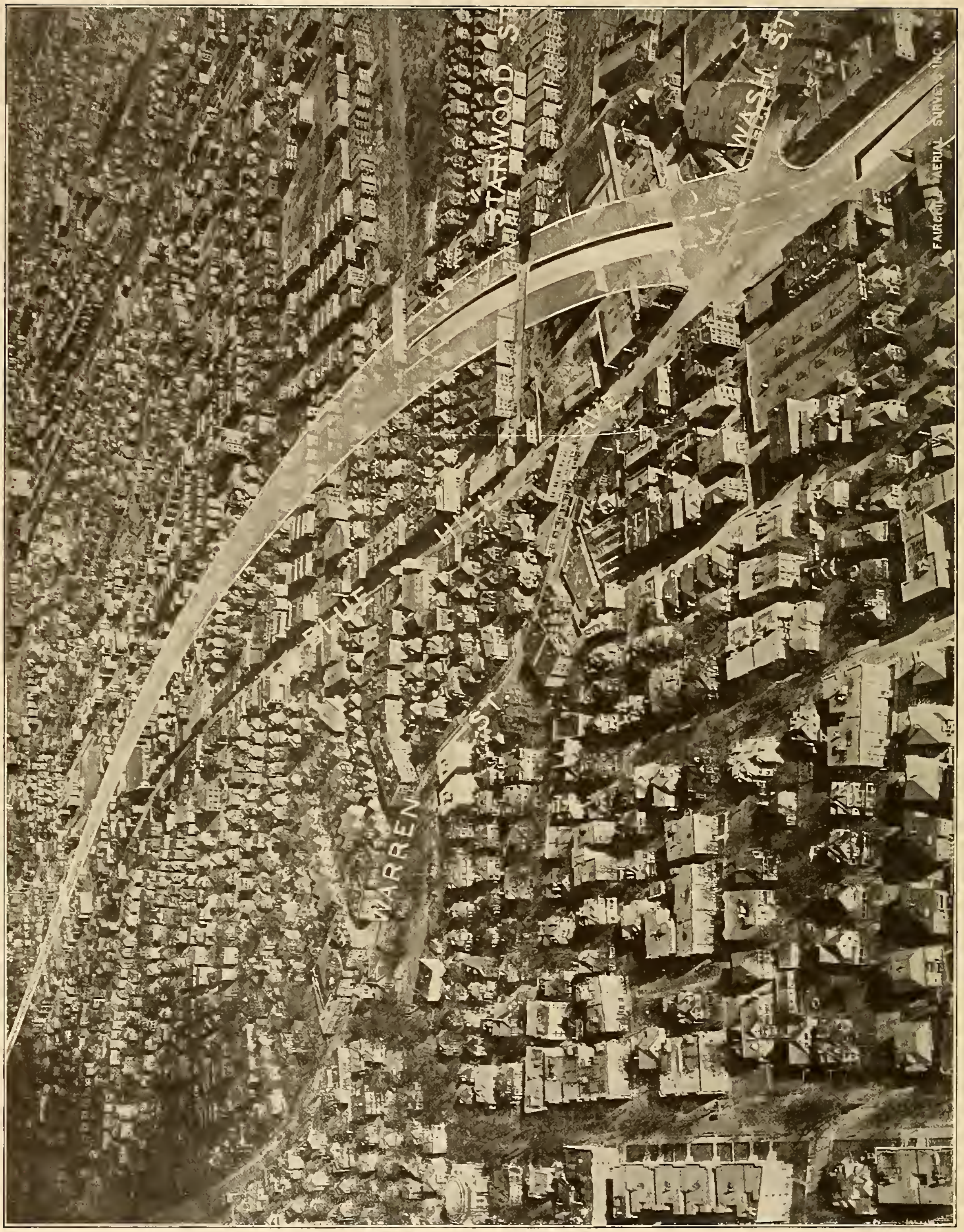


FIGURE 55.—SOUTH END OF BLUE HILLS RADIAL SHOWING UNDERPASS AT WASHINGTON STREET.

FIGURE 56.—Plan of Blue Hills Radial, Project 3.

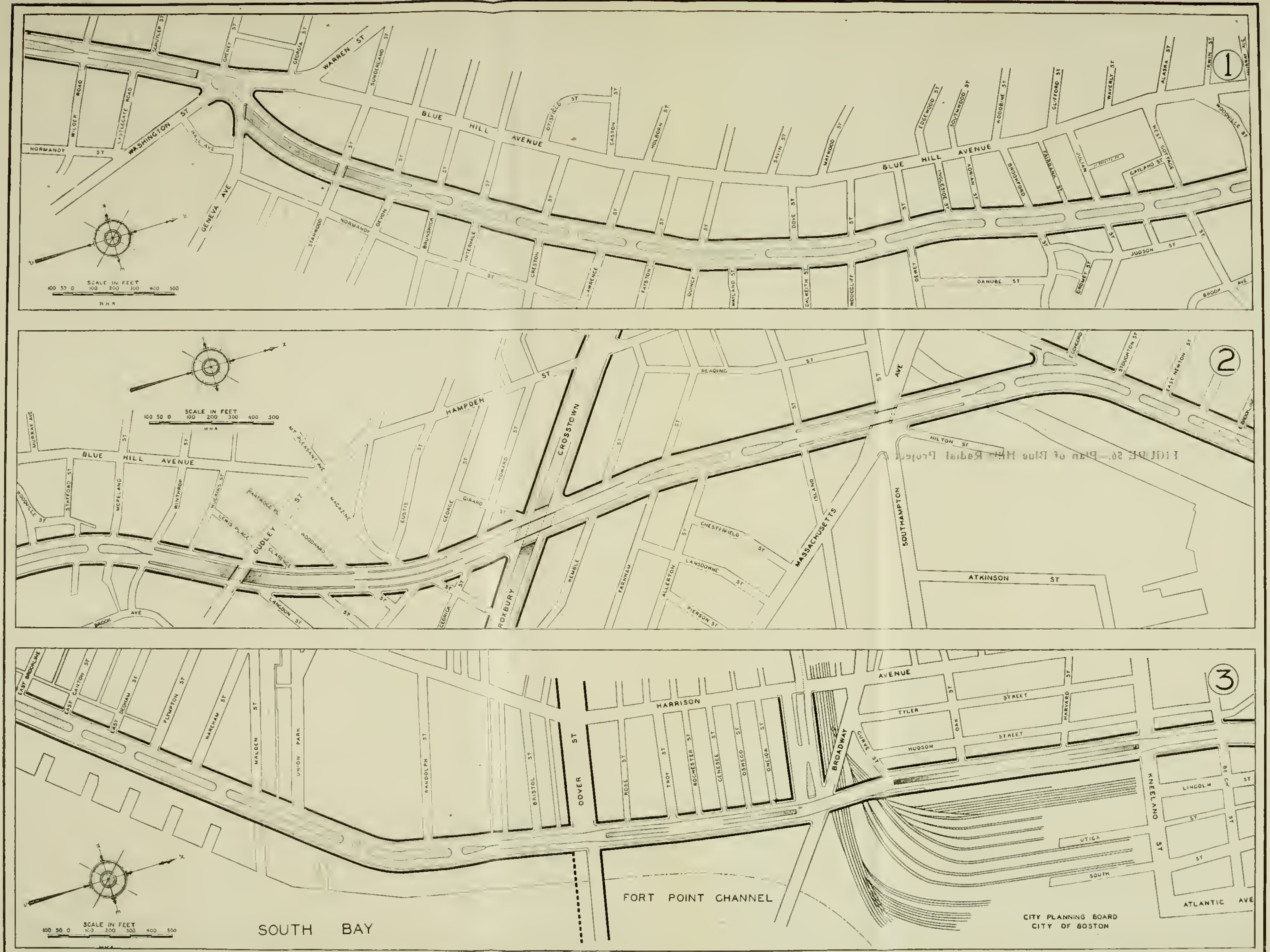


Figure 56.—Plan of Blue Hills Radial, Project 3.

Approximately a third of the traffic that it is estimated will use the Blue Hills Radial would, under present conditions, use the route via Seaver Street and Columbus Avenue to Downtown Boston. Vehicles can proceed over this route at an average speed of not more than 15 miles an hour. This route, being 23,750 feet in length, requires at 15 miles per hour 18.0 minutes. The new route shows a saving of 11.0 minutes for each of the $3\frac{1}{3}$ million vehicles that it is estimated will use the Seaver-Columbus route unless the new route is constructed.

Another substitute is that provided by Columbia Road, Boston Street and Dorchester Avenue. This is less than a third of a mile longer than the new route, but the travel speed is but 12 miles an hour as against the speed of 30 miles an hour on the new route. This difference in distance and speed shows a loss of 12.1 minutes for the 1,666,000 vehicles that it is estimated would use this route in case the new route is not constructed.

Of the 10,000,000 vehicles annually using the new route it is estimated that about one sixth, or 1,666,000, would otherwise go to and from Boston Proper by way of Morton Street, Arborway, Riverway, Boylston Street and Commonwealth Avenue. This route is almost 3 miles longer than the present route through Blue Hill Avenue, Hampden and Albany Streets, but the difference in travel time is not great under present conditions. To travel from the intersection of Morton Street and Blue Hill Avenue to the intersection of Charles and Boylston Streets, assuming a speed of 18 miles an hour, requires 25.5 minutes. From Morton Street to Kneeland Street, by way of Blue Hill Avenue, Hampden and Albany Streets, is a distance of 26,500 feet, and at the average speed of 12 miles an hour requires 25.2 minutes. There is at present, therefore, no material difference in time between the two routes. With the construction of the new Blue Hills Radial, the average speed between Seaver Street and Kneeland Street will be increased from 12 miles to 30 miles an hour. This will cut the running time from Morton Street to Kneeland Street to 14.6 minutes, thus showing a time saving for the Blue Hills Radial as compared with the parkway of 10.9 minutes.

It is safe to say, therefore, that there will be an average saving of at least 10 minutes per vehicle for each of the 10,000,000 vehicles using the new route. Taking all classes of vehicles, it is believed the time saved can be conservatively valued at 2 cents per minute. This indicates an aggregate annual saving of $2,000,000 for the 10,000,000 vehicles that will be using this section of the Blue Hills Radial by 1936.

It is estimated that the Blue Hills Radial, extending from Kneeland Street to Washington Street, a distance of 17,500 feet, will cost for property and construction about $9,500,000. This is about $540 per running foot. The annual charge for interest and sinking fund on 9.5 millions of bonds will amount to approximately $570,000. It is estimated that the annual economic saving to the owners of vehicles using the road will amount to $2,000,000, or 3.5 times the required annual carrying charges. This project has been included in the second construction period.

PROJECT 4. NORTH SHORE RADIAL

The North Shore Radial has been designed to serve as the northerly approach to the East Boston Tunnel. It is planned as an intown continuation of a new State highway that has been studied by the Division of Metropolitan Planning and the State Highway Division. It will supply an express road connection between the Tunnel and the North Shore Road, the Salem Turnpike and the Newburyport Turnpike. The Boston portion of this route will extend as an express road from the tunnel plaza at Porter Street along the present line of Bremen Street and immediately adjacent to the Boston and Albany tracks to a point near Curtis Street. From this point the route after crossing over the Boston and Albany tracks and over Curtis Street extends adjacent to the right of way of the old Eastern Division of the Boston and Maine Railroad across unimproved land, salt marshes, the Belle Isle Inlet and the Revere Beach Parkway to a point north of Beach Street in Revere, where branches would connect with the North Shore Road on the east and the Salem Turnpike and the Newburyport Turnpike on the west. (See Fig. 57.)

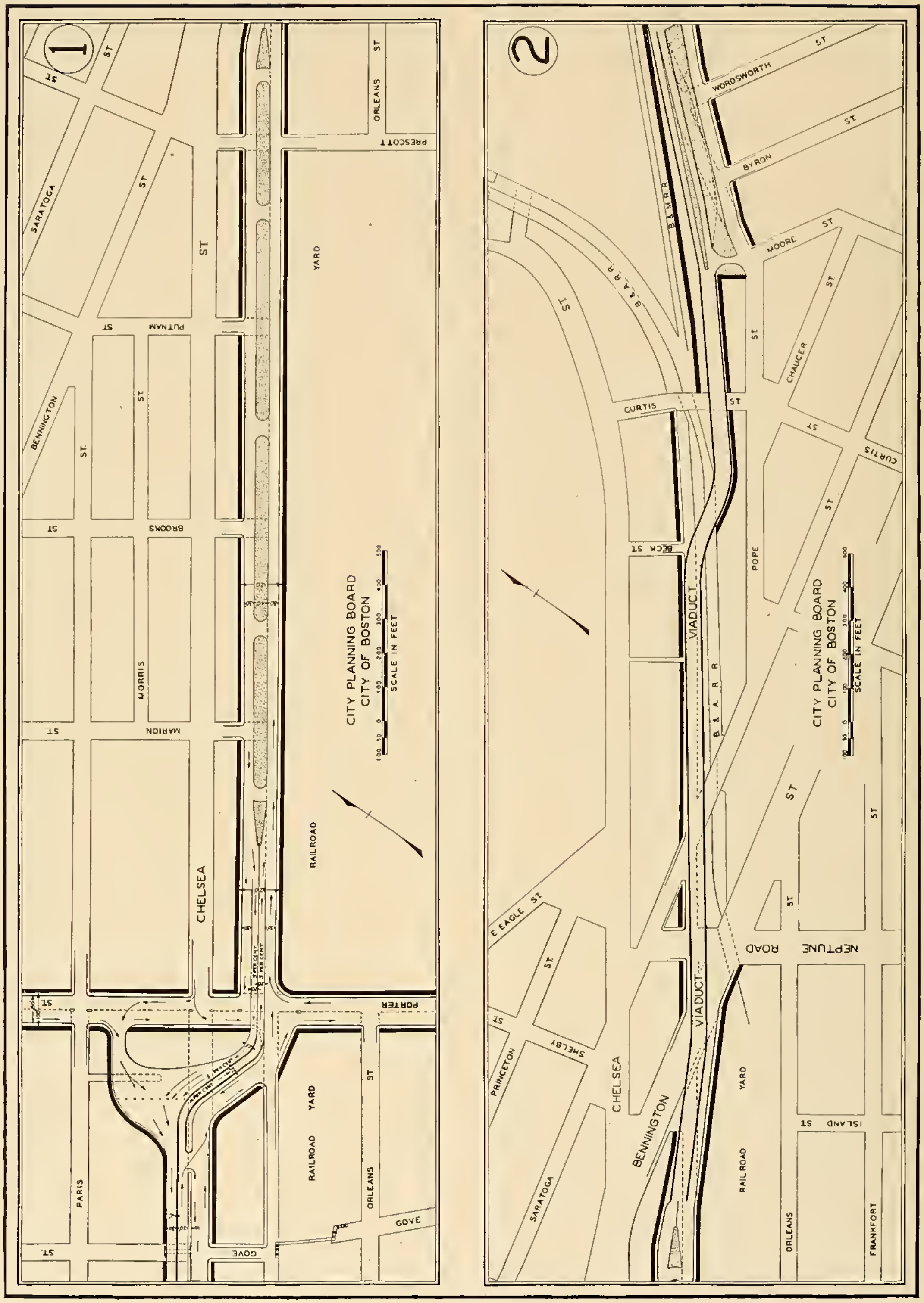


Figure 57.—Plan of North Shore Radial, Project 4.

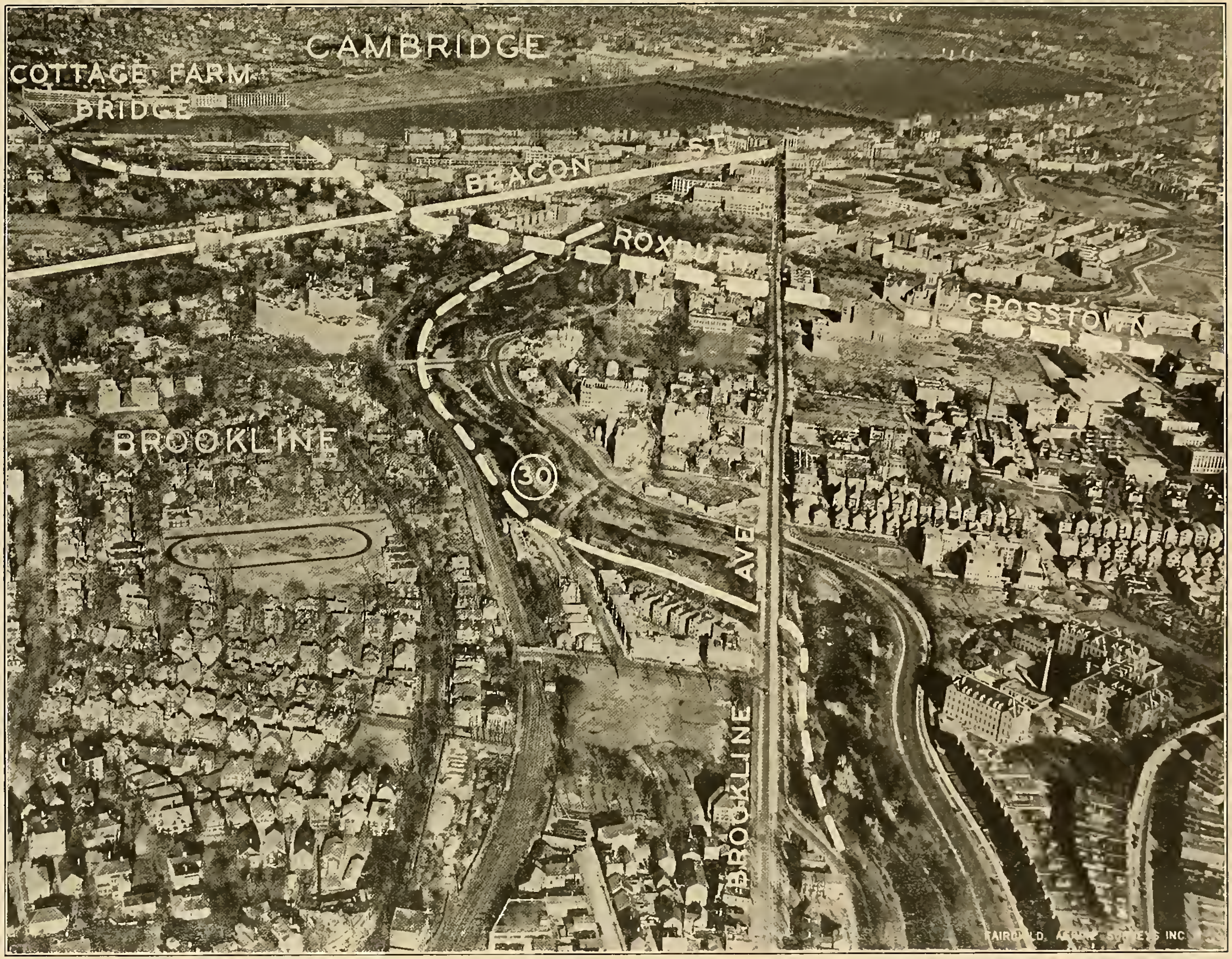


Figure 58.—Northwesterly Portion of Roxbury Crosstown from Charles River Across Beacon Street, Riverway and Brookline Avenue.

From the tunnel portal an overpass will carry the express road traffic over Porter Street into the center of a widened Bremen Street. Bremen Street is immediately adjacent to the Boston and Albany yards. Prescott Street is the only street crossing over the railroad yards between Porter Street and Bennington Street at Day Square. It is proposed to widen Bremen Street to 120 feet between Porter Street and Bennington Street and improve it with two 30-foot roadways separated by a 40-foot reserve strip. The limited amount of cross traffic now using Prescott Street can be required for the present to weave across the express road, as indicated in Fig. 5. From a point south of Bennington Street an elevated roadway or viaduct will extend from the center of the widened Bremen Street over Bennington Street, Neptune Road, Saratoga Street and Curtis Street, a distance of 2,800 feet. Along the proposed route between Curtis Street in East Boston and the Revere Beach Parkway in Revere, a distance of 9,100 feet, there are no cross streets with the exception of Boardman Street. Grades at Boardman Street may easily be separated whenever traffic conditions warrant. Grades should be separated at the Revere Beach Parkway and at Beach Street but these points are outside of Boston in the City of Revere.

The estimated cost of the Boston portion of this express road, 10,800 feet in length, is $2,715,000.

The construction of the North Shore Radial is essential to secure the full value of the East Boston Tunnel. It has been included in the first construction period so that it may be completed by the time the Tunnel is open to traffic. It is suggested that it be constructed by the Commonwealth as a part of its highway system.

Figure 59.—Portion of Roxbury Crosstown Along Norfolk Avenue.

PROJECT 5. ROXBURY CROSSTOWN

The Roxbury Crosstown will extend as an express road from the Old Colony Parkway to the proposed Charles River Parkway at Ashby Street, a distance of 4.28 miles. For part of its length it will lie between Dudley Street and Massachusetts Avenue. Traffic in some parts of Massachusetts Avenue is reduced in speed by congestion and cross traffic to 7 miles an hour, while for the entire distance from Albany Street to Harvard Bridge it averages less than 12 miles an hour. Speed of travel on Dudley Street is no better. The new route will furnish a splendid relief street both for Massachusetts Avenue and for Dudley Street.

From Dorchester Avenue on the east it will follow portions of Mayfield Street and Norfolk Avenue and will parallel Ruggles Street and the Fenway to the Riverway. From the Riverway it will follow St. Mary's Street and Ashby Street to the Charles River Parkway. From Old Colony Parkway to Commonwealth Avenue the new route will be an express road having a general width of 140 feet except between Sydney Street and Dorchester Avenue, where the width will be 120 feet. The typical cross section for the 140-foot width will be two 10-foot sidewalks, two 40-foot roadways and a 40-foot central planting strip. There will be underpasses or overpasses in order to separate grades at Dorchester Avenue, Columbia Road, Blue Hills Radial, Harrison Avenue, Washington Street, Shawmut Avenue, Tremont Street, Columbus Avenue, Huntington Avenue, Brookline Avenue, The Riverway, Beacon Street and Commonwealth Avenue. (See Fig. 61.)

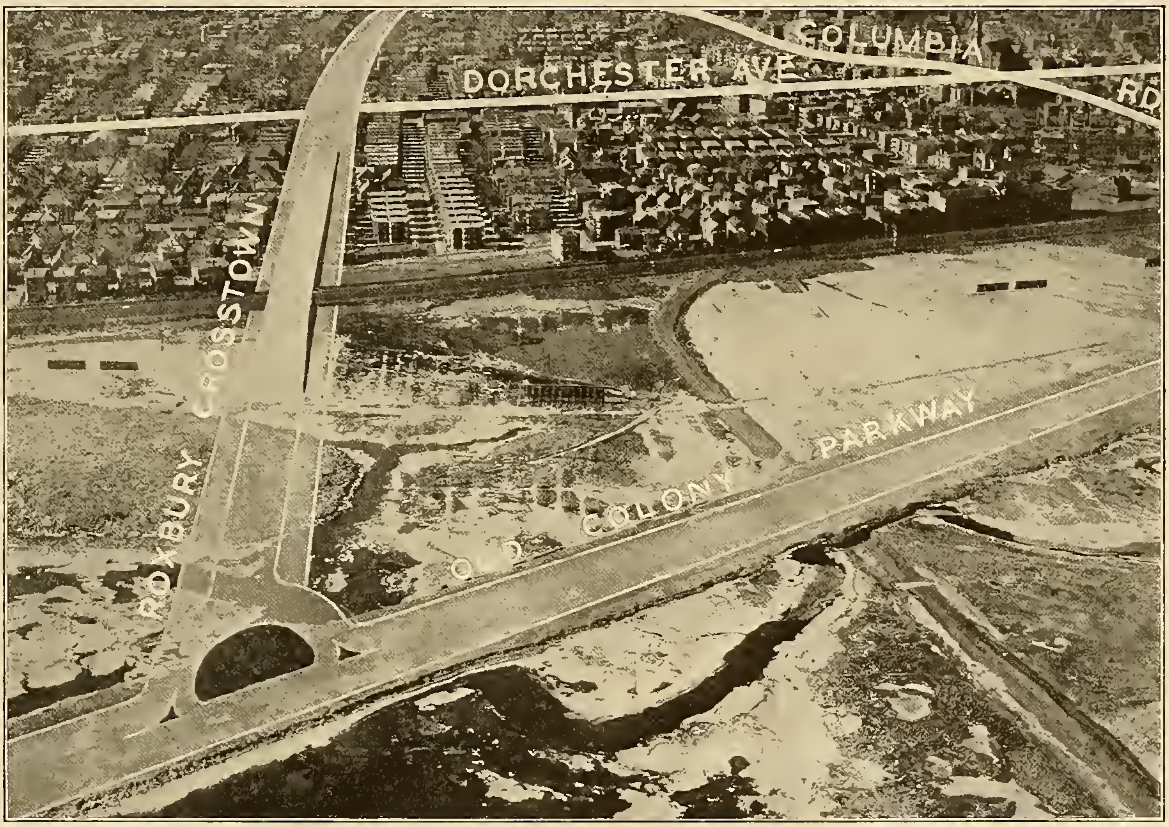


Figure 60.—Easterly Portion of Roxbury Crosstown Showing Connection with Old Colony Parkway North of Savin Hill.

A traffic island permits the left-hand turn from Old Colony Parkway without interrupting the southbound flow.

The above route for a distance of 2,300 feet lies entirely within the town of Brookline. The Brookline-Boston line runs along the easterly side of St. Mary's Street. The estimated cost of this portion of the project lying outside of Boston is $2,800,000. The estimated cost of that portion of the project within the City of Boston is $9,200,000. In view of the fact that a considerable portion of the proposed express road lies outside of the City of Boston and in view of the fact, also, that it extends from the Old Colony Parkway on the east to connections with the Charles River Road and the Cottage Farm Bridge on the west, all of which have been constructed by the Metropolitan District Commission, it seems appropriate that this project should be constructed, in part at least, by the Commonwealth as a part of the State highway system.

It is estimated that in 1940 the Roxbury Crosstown will carry throughout its length an average 24-hour traffic of 19,600 vehicles. The length of this route being 4.28 miles there will be 84,000 vehicle miles a day, or 30,000,000 vehicle miles a year. At a speed of 30 miles an hour it will take 2 minutes to travel 1 mile over the new route, while to travel an average mile over Massachusetts Avenue, Dudley Street or any alternative route would require 4 to 5 minutes, thus showing a time saving of 2 to 3 minutes per vehicle mile. Assuming $2\frac{1}{2}$ minutes as the average saving per vehicle mile and valuing each minute saved at 2 cents gives a saving of 5 cents per vehicle mile. This for the 30,000,000 vehicle miles that it is estimated will be traveled over the new route in 1936 gives a total annual saving to the users of the new route of $1,500,000. The estimated cost of the entire route, including the portion within the Town of Brookline, is $12,000,000. This at 6 per cent for interest and amortization will mean an annual carrying charge of $720,000. The estimated annual economic saving is therefore more than two times the annual carrying charge. This project has been included in the second construction period.

PROJECT 6. CHARLES RIVER PARKWAY

To provide for the uninterrupted movement of large volumes of traffic westward from the city, the shores of the Charles River Basin offer the only satisfactory route. The roadways on both sides should be completed from Charles River Dam to Watertown Square. The Special Commission on the Charles River Basin, appointed in 1928, incorporated such roadways in its plans for the development of the Basin.

The Basin Improvement Plan, as approved by the Legislature, provides for the widening of existing shore park areas between Charles River Dam and Charlesgate West and the creation of a new strip of shore park from Charlesgate West to the Cottage Farm Bridge. The additional park area is to be secured by filling in land now under water. The plan as proposed by the Special Commission, but which was not approved by the Legislature, provided for the construction of a sunken roadway through a portion of the park strip thus created. The Act authorizing the improvement of the basin while authorizing the construction of the park strip, provides that no portion of it shall be used for roadway purposes without further authorization by the Legislature.

It is believed that increasing traffic congestion at Governor Square and along Beacon Street and Commonwealth Avenue will eventually make necessary the construction of a park roadway between the Longfellow Bridge and the Cottage Farm Bridge, a distance of 12,400 feet, substantially as proposed by the Basin Commission. This project has been included in the third construction period. It should be constructed by the Metropolitan District Commission.

The widening of Charles Street and the traffic circle and underpass at Longfellow Bridge were authorized by the 1929 Legislature and are included as projects 19 and 20 in the first construction period. It is estimated that the proposed parkway, if constructed, will carry an annual traffic of 10,000,000 vehicles in the year 1940. The annual economic saving to the users of the parkway is estimated at $920,000. This is based on a saving of 2 minutes per mile traveled

FIGURE 61.—Plan of Roxbury Crosstown, Project 5.

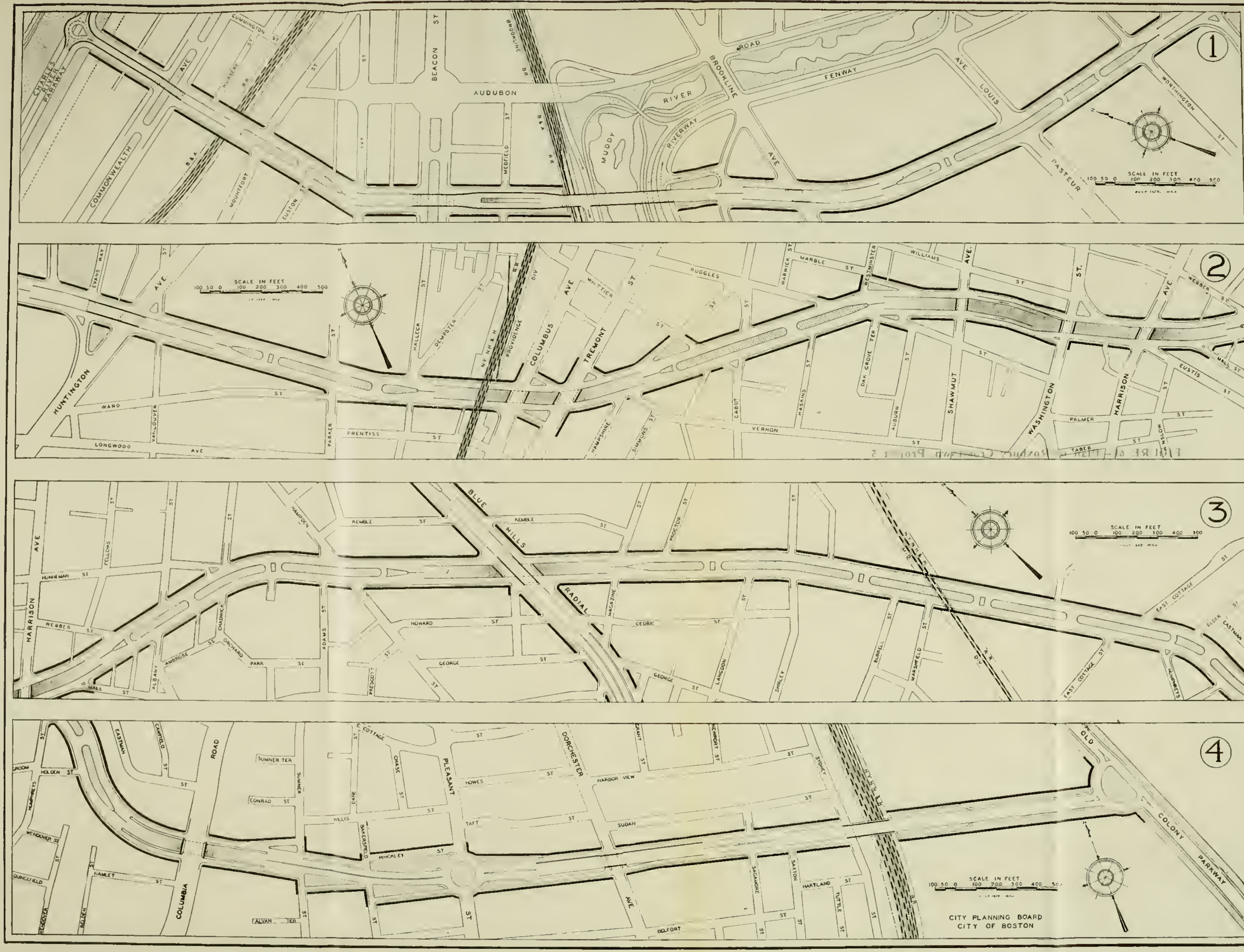
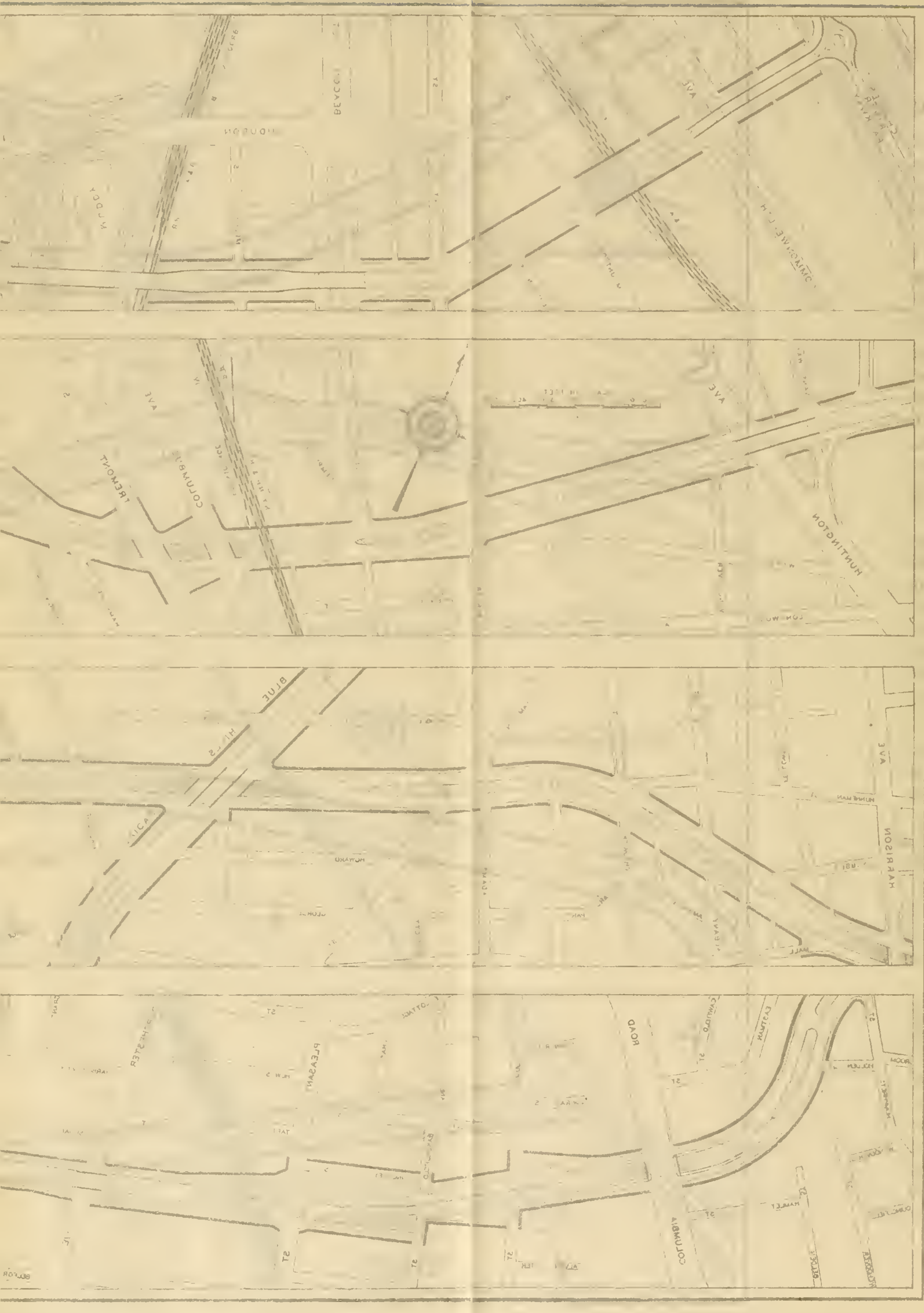


Figure 61.—Plan of Roxbury Crosstown, Project 5.



over the parkway as compared with the present travel time on Beacon Street or Commonwealth Avenue.

Vehicular access to the proposed parkway should be provided at Berkeley Street and at Hereford Street. This will require a widening of these streets between Beacon Street and Back Street. Overpasses should provide access for pedestrians to the park strip along the waterfront. Ramps at Harvard Bridge should be constructed so that westbound traffic on the parkway can make a turn to the right on to the bridge and southbound traffic on the bridge can turn right on to the parkway.

PROJECT 7. NORTH BEACON STREET (BRIGHTON)

North Beacon Street is a part of Federal Route No. 20, leading from the heart of Boston via Governor Square to Watertown, Worcester and the west. The Commonwealth Avenue portion west of Governor Square is already 160 feet wide and the Brighton Avenue portion 100 feet wide, but its extension beyond Union Square, Brighton, known as North Beacon Street, is only 60 feet wide. At the western end of North Beacon Street a new bridge across the Charles River, with its approaches, is 80 feet wide and approximately this width is continued to Watertown Square. Of the $7\frac{1}{2}$ miles from the center of Boston to Watertown Square only $1\frac{1}{4}$ miles, or one sixth of the distance, is but 60 feet wide. Thus a widening of the comparatively short constricted portion of this artery will unite two much wider portions and correspondingly increase the effective capacity of the entire route.

In 1920 North Beacon Street was widened from 50 feet to 60 feet at a cost of $170,000. In 1927 a 10-hour count showed 8,000 vehicles using this route. It is estimated that this traffic will almost double during a 25-year period.

It is proposed to widen North Beacon Street throughout to a width of 140 feet. The widening is to be entirely on the south side, which is now occupied chiefly by small dwellings, with considerable vacant frontage along the western half of the street. The present street as constructed will not be disturbed, but in the 80-foot taking a new 40-foot roadway is to be constructed, with a 10-foot sidewalk along the new frontage and a 30-foot grass plot adjacent to the existing 10-foot sidewalk, making a 40-foot separating strip in the center of the new thoroughfare. North Beacon Street will then become a typical express road in total width and in the width and disposition of roadways. East bound and west bound traffic will be separated by the 40-foot strip and local cross traffic will be eliminated by extending this strip across the ends of intersecting local streets, thus permitting a faster movement of traffic on North Beacon Street and reducing accidents. (See Fig. 5.)

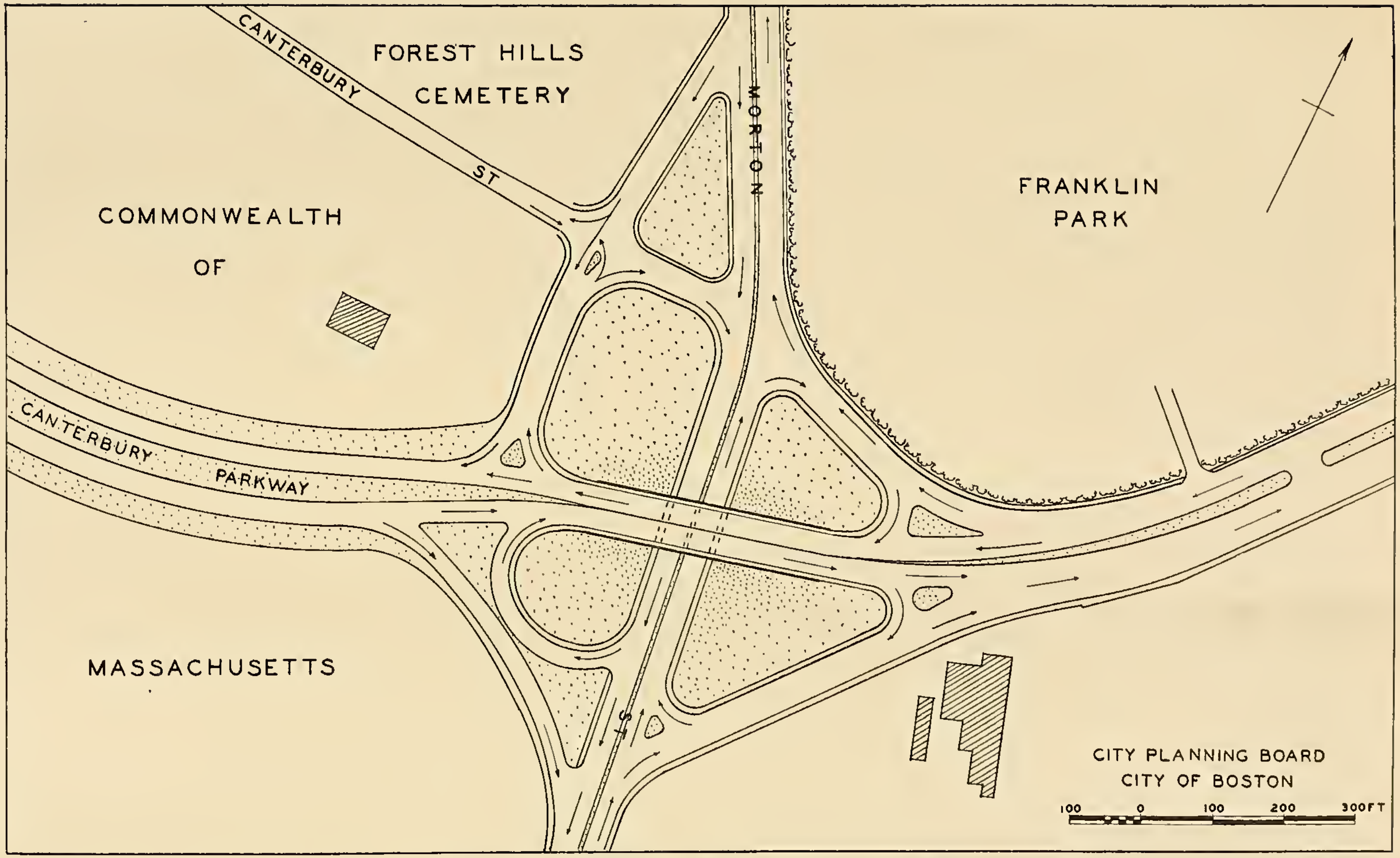
At two points this radial route will be intersected by important cross roads. Market Street is proposed to be developed as part of a main circumferential route. Grades should be separated where it crosses North Beacon Street. Nonantum Road, a portion of the parkway along the Charles River, is planned to be extended from its present terminus at North Beacon Street northeasterly along the river, making a through route. Grades should also be separated at this intersection, which will be just east of Faneuil Bridge over the river.

The total length of the North Beacon Street widening, from Union Square to Faneuil Bridge over Charles River, is 6,600 feet. It is estimated that the proposed improvement will mean an average saving of 2.5 minutes or 5 cents to each of the 5,340,000 vehicles that will use this route in 1936, or an annual total of $267,000. The total cost of the project, not including the two proposed grade separations, is estimated at $1,040,000. This project has been included in the third construction period.

PROJECT 8. CANTERBURY AND CLARENDON HILLS PARKWAYS

For access into the city from the south and southwest the present avenues do not suffice, nor are they readily susceptible of adequate improvement to meet traffic needs. Instead, traffic may be provided with a new route but little longer and avoiding the more closely built sections of the suburbs and present intersecting streets. The Canterbury Parkway will pass through a relatively open belt of land between Dorchester and West Roxbury. At its inner end it will

Figure 62.—Portion of Canterbury Parkway along East Side of Franklin Park.



Overpass at Canterbury Parkway and Morton Street.

The double roadways of the Canterbury Parkway are to be carried over Morton Street, on a bridge 60 feet in width. No left hand turns will be permitted. Traffic desiring to go left will circle to the right around the small irregular shaped blocks. On account of the larger land area required a grade separation of this kind is not often feasible within the closely built portions of the city.

Figure 63.—North Portion of Canterbury Parkway Showing Morton Street, State Hospital Lands and Walk Hill Street.

form a direct continuation of the Blue Hills Radial Artery from the center of the city. At its outer end it will lead through the Neponset River Parkway into Blue Hill Avenue, State Route No. 138, to the south and through the proposed Clarendon Hills Parkway into Washington Street, Federal Route No. 1, to the southwest, besides affording a number of scarcely less important connections.

The two parkways will thus serve effectively as a by-pass for the congested portions of both Blue Hill Avenue and Washington Street. Though the distance in each instance is somewhat greater by way of the parkway, the time needed is actually less, and the use of this route increases safety not only for automobilists but for pedestrians, due to diverting automobiles from the congested business streets. From Blue Hill Avenue at the present Neponset River Parkway it is 5.0 miles by Blue Hill Avenue to Canterbury Street and 6.1 miles to the same point following the Neponset River and Canterbury Parkway route, but the latter route is estimated to save nearly 1 minute in running time. From West Roxbury Parkway to Massachusetts Avenue it is 5.4 miles by Washington Street and 6.4 miles by the proposed parkways, but the time required for the latter is estimated to be 6 minutes less.

Beginning at Seaver Street it is proposed to widen Blue Hill Avenue by a taking from Franklin Park 30 feet wide and to construct a second roadway 40 feet wide, leaving the electric car tracks in a reserved strip between the two and thus securing approximately a standard express road treatment. This is to be continued along the present Canterbury Street, now only 35 feet wide, to Morton Street by a widening of approximately 88 feet. When this portion is opened the land lost by Franklin Park should be compensated for by closing the present automobile road within the park and routing vehicles not through the park, but around it by way of Morton Street and the new parkway. At Morton Street extra land is to be acquired to permit separation of grades, with interconnecting roads. Between Morton Street and Walk Hill Street Canterbury Parkway is proposed to be constructed on a 170 foot taking across one side of the property belonging to the Commonwealth. Enough land is to be included for Walk Hill Street later to be carried over the parkway.

Beyond Walk Hill Street the parkway enters the shallow valley of Stony Brook, with first a tributary and then the main brook in a reserved strip of varying width within the limits of the parkway, which will have a width of 200 to 300 feet between property lines. This width will be increased to a maximum of 900 feet at Neponset Avenue, where a community playground is needed to serve a rapidly growing region, a site in this vicinity being recommended by the Boston Park Department. At Cummins Highway another separation in grades is to be made.

South of Cummins Highway a width varying from 200 to 1,800 feet is to be taken, with the double roadway and a local service road constructed along the western edge of a large area, about 100 acres in extent, between it and Wood Street on the east. This property should be developed as a park and playground, for which its natural topography is admirable. Within its borders there are a number of interesting ledges (see photograph, Fig. 65) and extensive wooded areas. Such a recreation tract is vitally needed to serve large and growing communities on its borders. Continuing south the parkway will cross over River Street, Neponset River and the New England Division of the New York, New Haven & Hartford Railroad on the Milton side of the stream, where it will join the proposed Neponset River Parkway, with possible connections to the east into Blue Hills Parkway and Brook Road and to the south along Neponset River to Hyde Park and the present Neponset River Parkway to Blue Hill Avenue.

Clarendon Hills Parkway

In order to tap Washington Street radial traffic from Dedham and points beyond, a connecting parkway is planned from Canterbury Parkway west to Washington Street at the West Roxbury Parkway. This will also serve circumferential traffic from the routes in the eastern part of the Neponset Valley bound via West Roxbury Parkway for Newton and points north. On Canterbury Parkway a large traffic circle is planned at a point near Newbern and Madison Streets. Thence the Clarendon Hills Park-

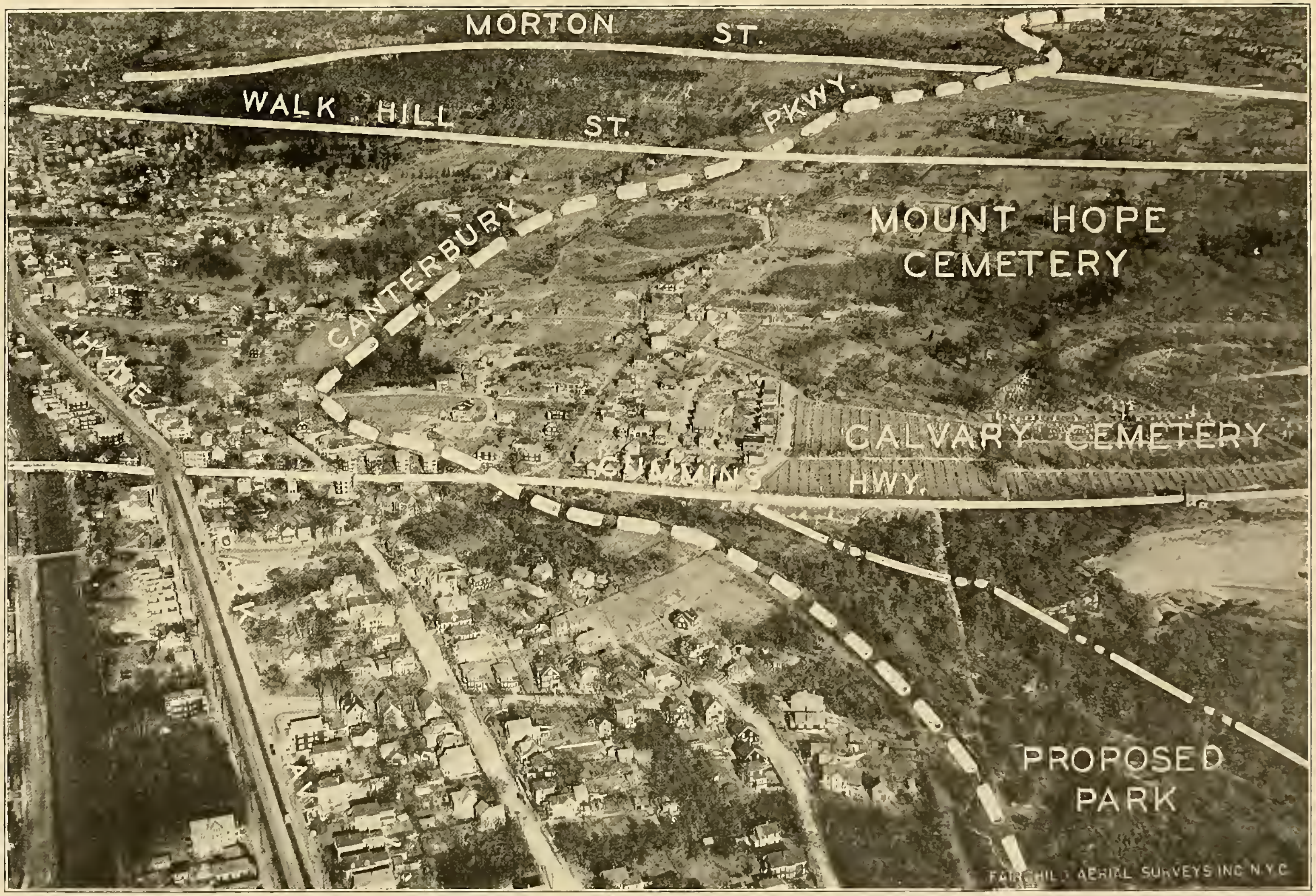


FIGURE 64.—PORTION OF CANTERBURY PARKWAY ALONG STONY BROOK.
The beautiful rocky ledges shown in Figure 66 are in the area marked Proposed Park at the right.

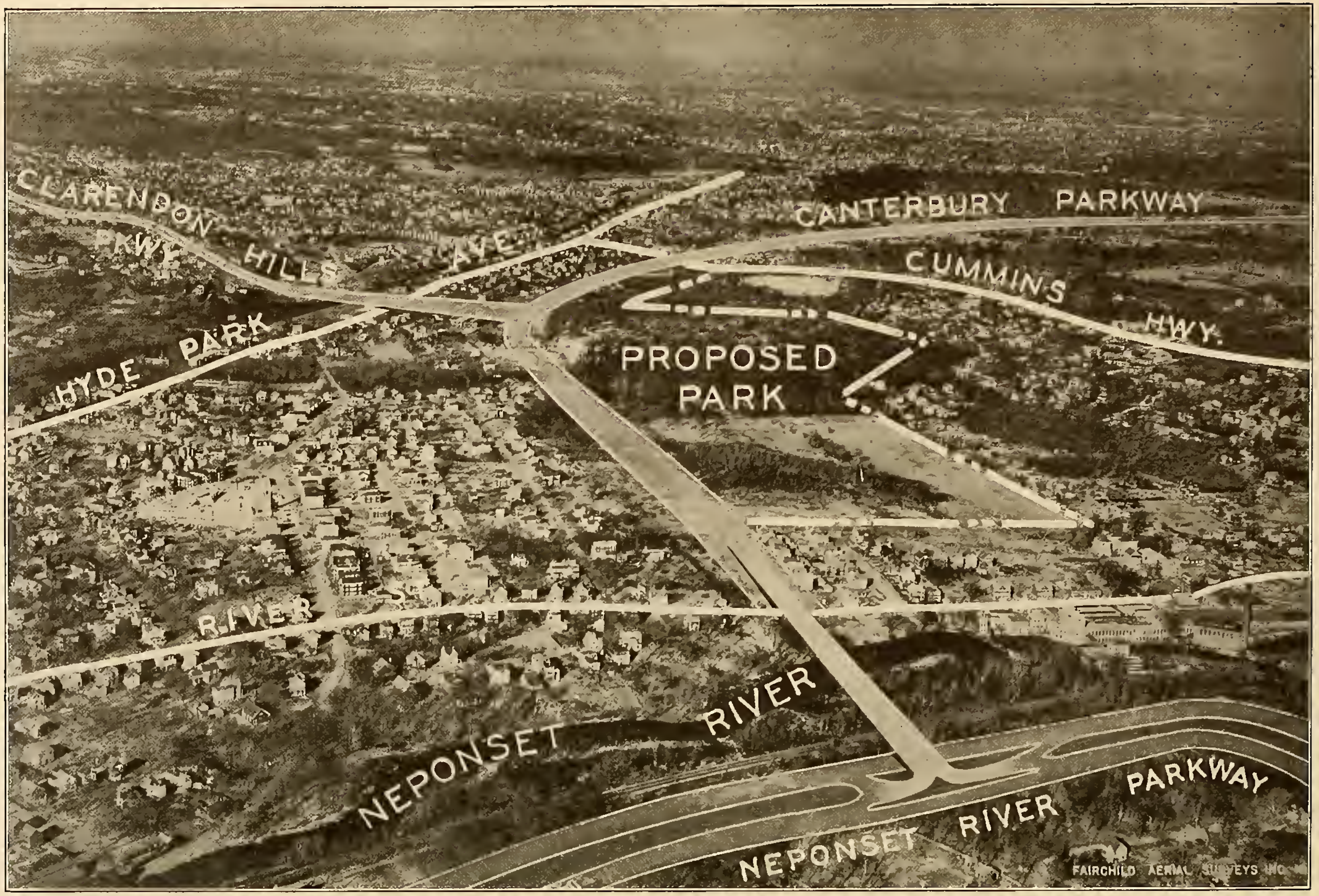


FIGURE 65.—CANTERBURY PARKWAY SHOWING CONNECTIONS WITH CLARENDON HILLS PARKWAY AND NEPONSET RIVER PARKWAY.
Grade separations are proposed at Cummins Highway, Hyde Park Avenue and River Street. The area marked "Proposed Park" is admirably suited for general park and playfield uses.

way is to pass over Hyde Park Avenue and the New York, New Haven & Hartford Railroad. The parkway, 150 feet wide, with two roadways and central park strip, is to pass beneath Poplar Street. It then widens to 180 feet to provide for local service roads, swings somewhat to the south to avoid unnecessary grades and reaches Washington Street along the line of Rockland Street, with a large traffic circle to handle vehicles at this point. The West Roxbury and Turtle Pond park roads will have to be relocated for short distances to bring them into the new circle.

These two parkways together with the proposed Neponset River Parkway form a logical extension of the present metropolitan parkway system and should be built as metropolitan district projects. They should, however, be open to general traffic.

Owing to the relatively open character of the region through which these parkways pass, the cost for land will be low, provided it can be taken promptly. The total estimated cost for property and construction is $2,370,000 for Canterbury Parkway and $1,290,000 for Clarendon Hills Parkway, or $3,660,000 for the entire project. The Canterbury Parkway is 4 miles in length and the Clarendon Hills Parkway is approximately 1 mile in length. They have been included in the third construction period.

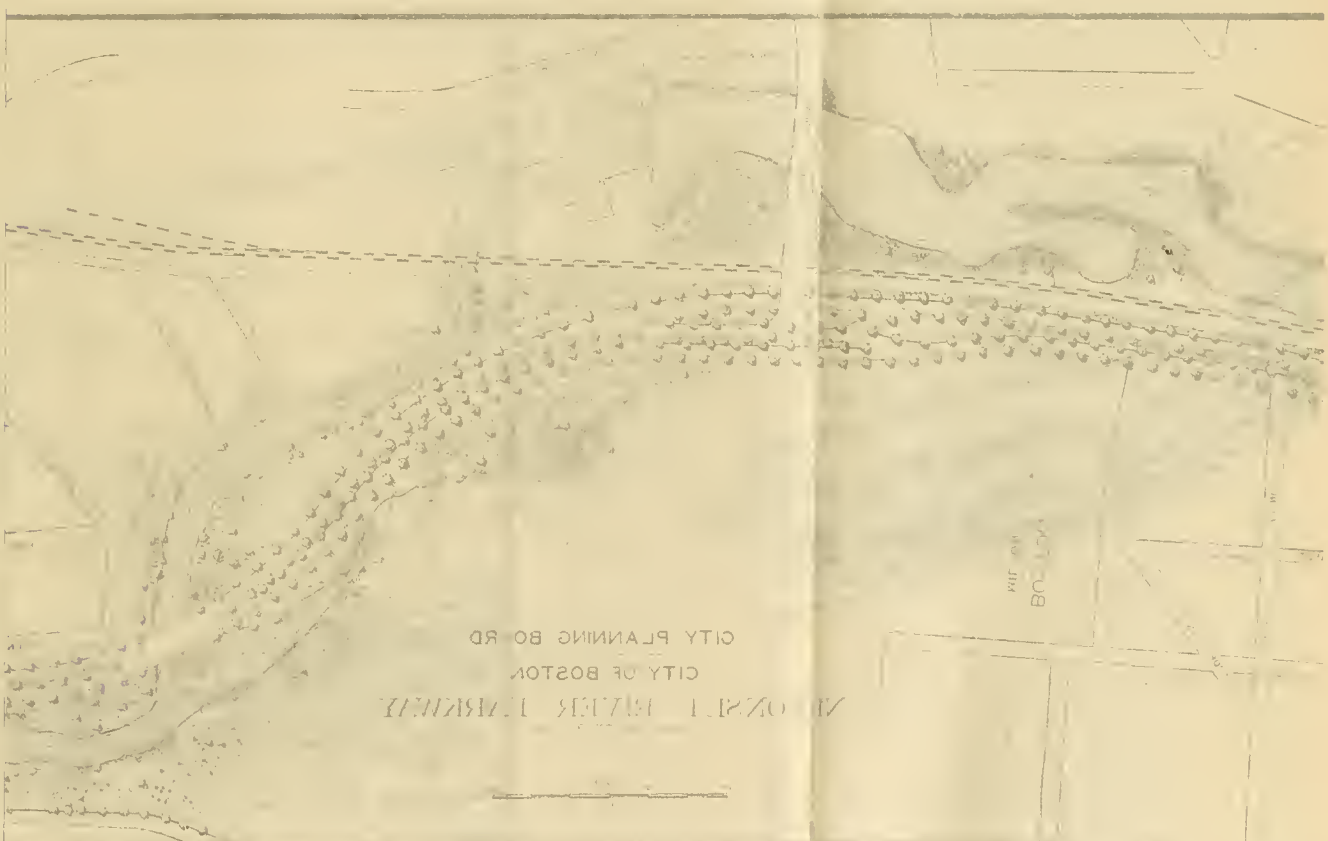
PROJECT 9. NEPONSET RIVER PARKWAY

On the south side of the city the Neponset River valley offers a natural location for a through parkway route, avoiding on the one hand the populous districts of Dorchester and on the other the hilly country of Milton. This route will connect all the radials on this side of the city with one another. Its southwestern portion in Hyde Park will serve as an extension of Canterbury Parkway to Blue Hill Avenue in Milton and, by a future route across the Fowl meadows to the through route to Providence south of Norwood. Its southernmost section will also serve as a portion of the much-needed connection between the Blue Hills and Stony Brook Reservation, a viaduct over the New York, New Haven & Hartford Railroad and Hyde Park Avenue, on land already owned by the Commonwealth for

FIGURE 66.—LEDGES ALONG CANTERBURY PARKWAY.
These beautiful rocky ledges unless included in a parkway reservation will probably be despoiled by quarry operations and the low land in the foreground may become a refuse dump.

Figure 67.—Portion of Clarendon Hills Parkway from Dale Street to Washington Street.

FIGURE 68.—Plan of Neponset River Parkway, Sheets 1 and 2.



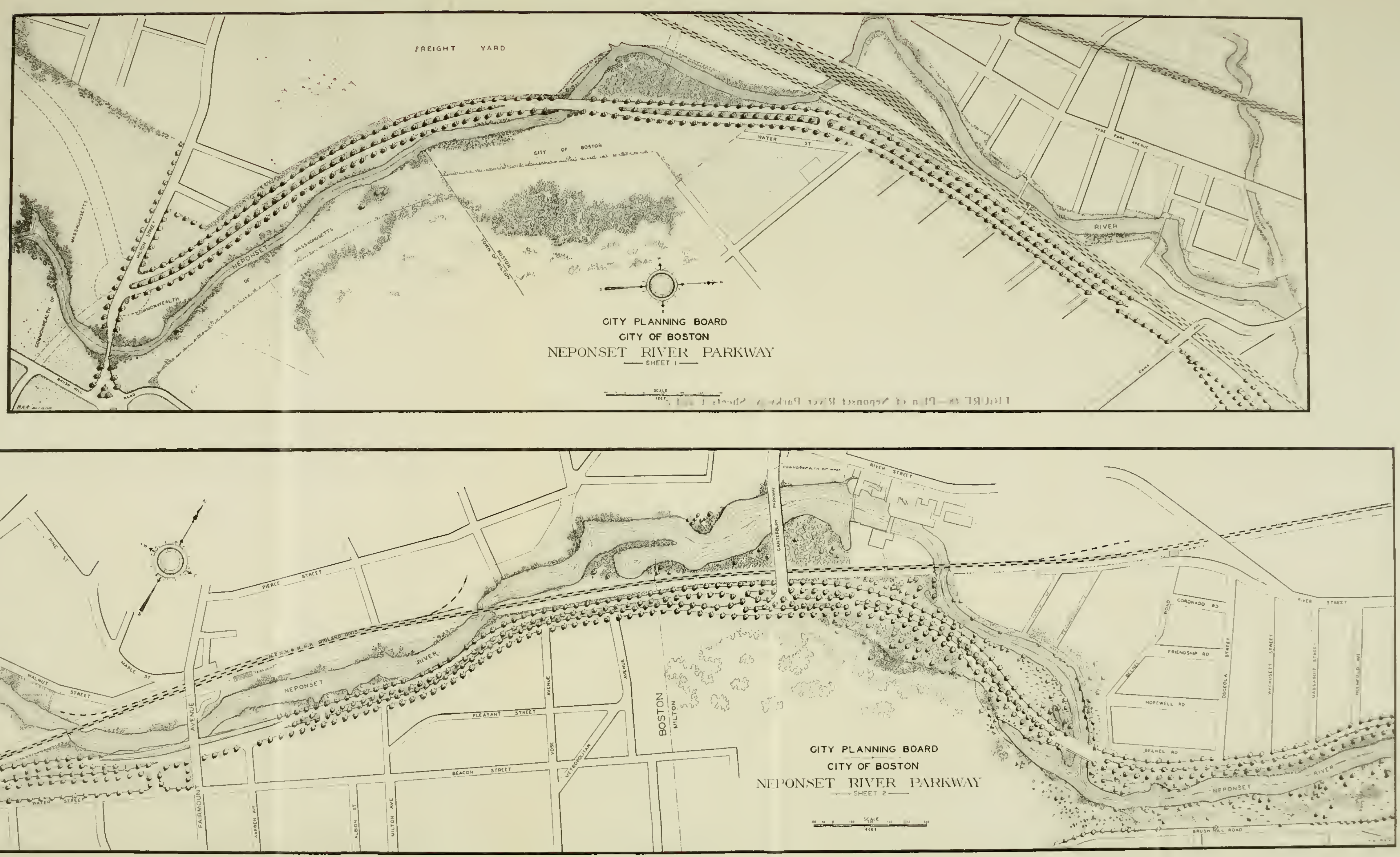


Figure 68.—Plan of Neponset River Parkway, Sheets 1 and 2.

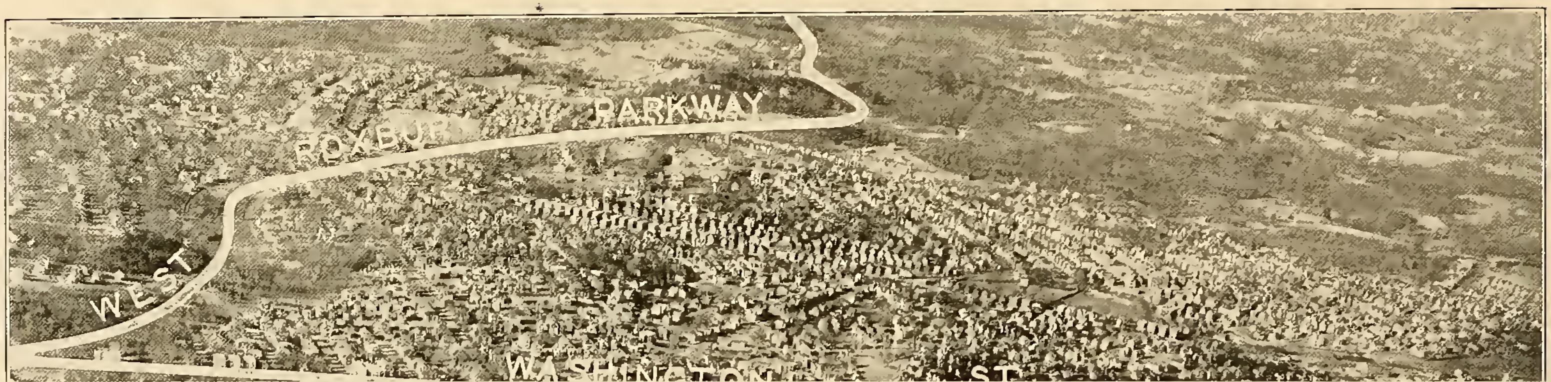

WEST
ROXBURY
PARKWAY
WASHINGTON
ST.

FIGURE 69.—Plan of Neponset River Parkway, Sheets 3 and 4.

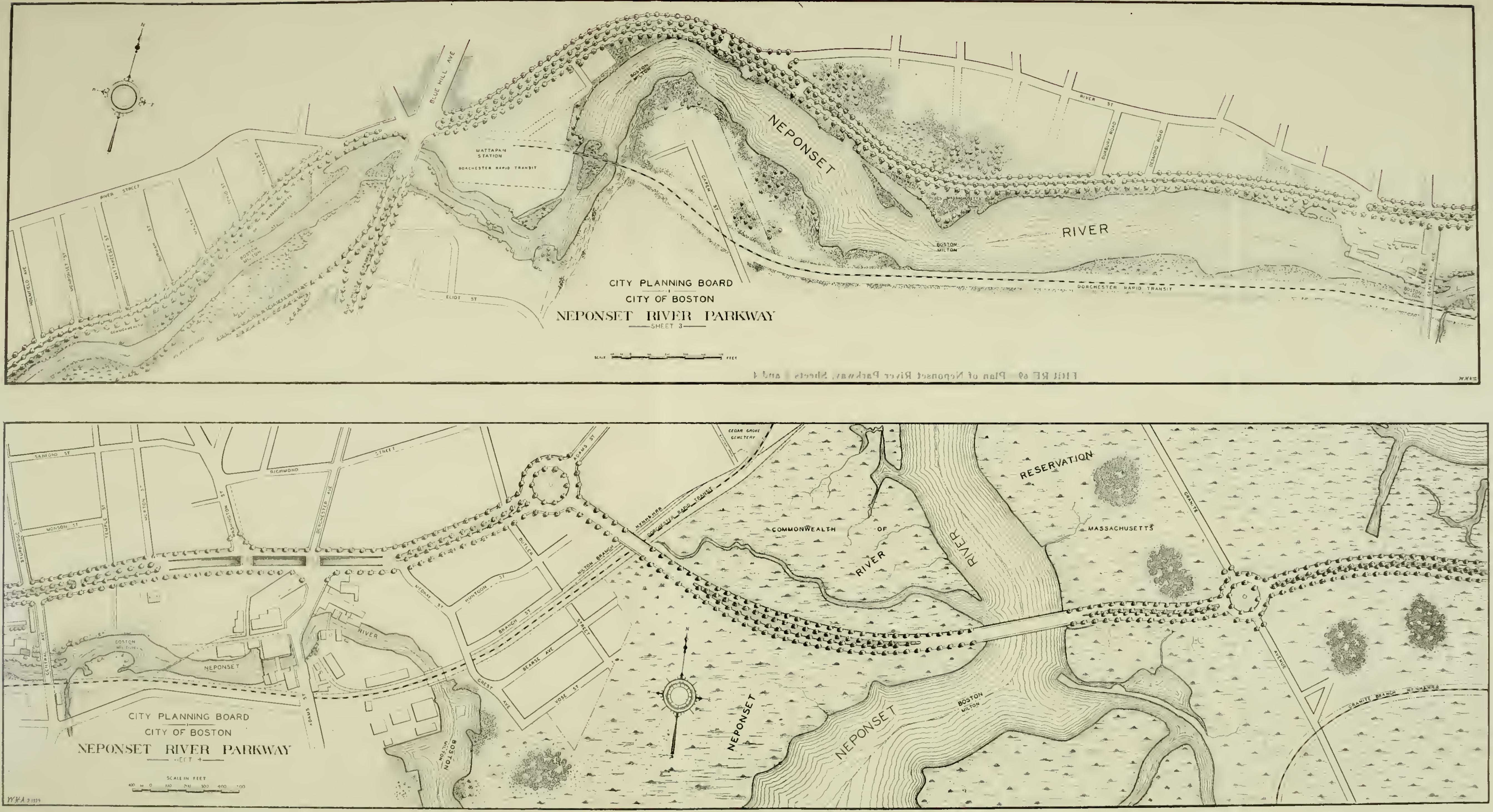


Figure 69.—Plan of Neponset River Parkway, Sheets 3 and 4.

this purpose, completing this link (project 74). From Canterbury Parkway east the Neponset River Parkway will also form a portion of the circumferential parkway from Newton by way of Hammond Pond, West Roxbury Parkway and the proposed Clarendon Hills Parkway. On the east it will connect with Old Colony Parkway, by-passing the intricate street system of Dorchester into the city; and will also connect with the Southern Artery and Quincy Shore Drive leading southeast. This parkway will thus act as a great interceptor, facilitating the rapid distribution of traffic towards its respective destinations.

Except for a short stretch in Milton at a bend in the Neponset River, the proposed route lies within the city limits. Its southern end near Paul's Bridge will need to be connected to the present metropolitan Neponset River Parkway in Milton by a short road and new bridge across the river, all on land now belonging to the Commonwealth. At the other end, the connection to the Quincy Shore Drive is about one third in Boston, one third in Milton and one third in Quincy.

For the most part the parkway will lie close to the Neponset River, utilizing in part city property and metropolitan park land already acquired. There will normally be two express roadways varying in width from twenty to forty feet. A reserved strip thirty to forty feet wide normally separates these roads and also permits separation of road levels, which on hillsides will assist the layout as well as eliminating needless expense for cut and fill. In the portions where frequent access to abutting property is needed service roads are planned so that local vehicles will not slow down the traffic on the express roads. Grade separations, with connecting roadways, are suggested at the more important road intersections to permit through traffic to flow uninterrupted. Extensive planting and park treatment will be provided wherever possible.

From Milton Street in Readville the proposed route swings northwest and north across the Neponset River and through the old Hyde Park water-works, and includes the present Water Street. Passing under Dana Avenue and Fairmount Avenue it again skirts the east bank of the river below the hill, keeping southeast of the New York, New Haven & Hartford Railroad, into the town of Milton. Here Canterbury Parkway is to join from the north, passing over one of the two express roads into the central strip and being brought down by ramps to the Neponset River Parkway level so as to avoid intersections at grade. (See Figs. 68, 69.)

Just before recrossing the Neponset River into Boston a connection is proposed to lead across Brush Hill Road and Blue Hill Avenue to a junction with Brook Road. After recrossing the River the Neponset River Parkway will skirt the north bank of the River, merging with River Street in the vicinity of Mattapan Square and again just west of Central Avenue. The route then follows River Street, varying in width from 130 to 140 feet, with an underpass at Pierce Square, and is continued by Adams Street to a point near Richmond Street, where a large traffic circle with 50-foot roadway will sort out the traffic bound along Adams Street to the Southern Artery and Old Colony Parkway from that bound for Quincy and beyond by way of the Quincy Shore Connection. The remainder of Adams Street to the Southern Artery is to be widened to 70 feet.

Quincy Shore Connection extending southeast is to be 80 feet wide, with a single 60-foot pavement, to the point where it crosses the rapid transit tracks on the former New York, New Haven & Hartford Railroad line. The balance of the distance to Granite Avenue is across metropolitan park holdings and is to have 2 roadways, except on the bridge, 80 feet wide, which is to span the Neponset River. At Granite Avenue a traffic circle is suggested. Beyond Granite Avenue the parkway leads east and northeast to Hancock Street opposite Quincy Shore Drive.

To relieve the present congestion at Mattapan an overpass should be constructed in Blue Hill Avenue over the Neponset River Parkway.

The total length of the parkway from Milton Street to the Neponset Bridge on the Quincy Shore Connection is $5\frac{3}{4}$ miles. The total cost is estimated to be $3,250,000.

FIGURE 70.—B & A HIGHWAY (PROJECT 10) FROM HUNTINGTON AVENUE TO ARLINGTON SQUARE.

As this parkway runs through three municipalities and is similar in character to other metropolitan parkways, and as it is to be constructed to a considerable extent over land already acquired as part of the metropolitan park system it appears that this parkway should be constructed as a metropolitan project. This project has been included in the third construction period.

It is believed that this project should be extended south along the edge of the Fowl Meadows as a part of a new state express road to Providence. A continuous express road would thus be available all the way across the city via the Neponset River Parkway, the Canterbury Parkway, the Blue Hills Radial, the Central Artery, the East Boston Tunnel and the North Shore Radial from the south and southwest to the north and northeast. Throughout most of its length it should be open to general traffic.

PROJECT 10. B & A HIGHWAY

Traffic movement in the Back Bay and South End districts of Boston Proper will be greatly benefited by diverting as many vehicles as possible from the present congested radial thoroughfares to a new express route. Moreover, with the construction of the Central Artery it will be of great benefit to connect it directly with Commonwealth Avenue and with all intermediate radials. Finally, such a route would afford direct access to South Boston.

An opportunity to provide such a diagonal thoroughfare at reasonable expense will be afforded by the present Boston and Albany Railroad right-of-way when a change of motive power permits covering it with a viaduct.

The Castle, Motte and Way Streets improvement (see project 24) will be the first link in this route, running from the Blue Hills Radial extension of the Central Artery at Albany Street and Broadway to Arlington Square. Just east of Arlington Square the new elevated roadway should ascend from the widened Castle Street by a ramp 40 feet wide, lead as a viaduct over Arlington Square and thence continue on this upper level over the railroad tracks and over all present streets for a distance of 2.2 miles to Commonwealth Avenue and Essex Streets at the Cottage Farm Bridge. The viaduct roadway should be 40 feet in width. (See Fig. 70.)

Such a viaduct with necessary ramps it is estimated will cost about $7,000,000, exclusive of any property costs. If opened for traffic in 1940, it is estimated that this elevated roadway would carry an annual traffic of about 10,000,000 vehicles. It has been included in the fourth construction period.

BOSTON PROPER

PROJECT 12. BEVERLY STREET WIDENING

In order to utilize the Warren Bridge over the Charles River to its fullest capacity as an integral part of the thoroughfare system, Beverly Street should be widened from Causeway Street to Washington Street North, a distance of 800 feet, from its present width of 50 feet to 80 feet by a taking on the west side of the street. It has been included in the fourth construction period. (See Fig. 51.)

PROJECT 15. WASHINGTON STREET WIDENING

Washington Street is 60 feet wide between Adams Square and Haymarket Square and Washington Street North is 100 feet wide between Haymarket Square and Charlestown Bridge. It is proposed to widen this 60-foot section, which is 1,000 feet in length, to 100 feet by taking 40 feet on the easterly side.

The Central Artery will have an upper level traffic circle at Haymarket Square with a ramp down into Washington Street North at Beverly Street so as to give access to the Central Artery from both the Charlestown Bridge and the Warren Bridge. It is proposed also to construct a ramp south from the upper level traffic circle at Haymarket Square through the widened Washington Street to Adams Square. This will permit traffic from the busy Adams Square and Faneuil Hall market districts to pass over Hanover Street and Haymarket Square in going to

the Charlestown or Warren Bridge or to the North Station or Charles River Dam. (See Fig. 51.)

It is estimated that this project will cost, for property and construction, $2,235,000. It has been included in the second construction period.

PROJECT 16. CHARDON STREET WIDENING

Chardon Street, which is 740 feet in length, will connect two of the most important traffic ways of the City of Boston: Cambridge Street and the proposed Central Artery.

At the present time there are several street connections between these traffic ways but none are of adequate width. The shortest and most economical street to widen for this connection is Chardon Street, which, however, is for the most of its length only 40 feet in width. It is proposed to widen it to not less than 80 feet throughout its length. (See Fig. 51.).

The estimated cost of land and building takings for this project is $753,000; the estimated cost of construction is $47,000, making the total cost of the project $800,000. This project has been included in the second construction period.

PROJECT 17. STANIFORD AND CAUSEWAY STREETS WIDENING

Causeway Street has recently been widened, east of Nashua Street, to 94 feet. This width should be continued two blocks west by a taking on the north side. Beyond Lowell Street, Staniford Street, which forms a virtual extension of Causeway Street to Cambridge Street, should also be widened so as to provide adequate facility for circulation of traffic.

Staniford Street is at present from 55 to 59 feet in width between Casueway Street and Green Street, and about 33 feet in width between Green Street and Cambridge Street. The 1927 traffic count showed 4,100 vehicles for a 10-hour period on Staniford Street in the section between Causeway Street and Green Street. The widened street would serve a considerable volume of traffic, chiefly between Cambridge Street and Causeway Street.

Conditions are such that a widening to a width varying from 110 to 116 feet can be secured about as cheaply as a widening to 80 feet. The two very shallow blocks lying between Staniford Street and Prospect Street should be taken in their entirety. This would give a width in this section of about 116 feet and would render possible the carrying of the elevated railway from Lowell Street into a tunnel at this point and its connection at Bowdoin Square with the East Boston Tunnel extension. This connection has been recommended by the Special Commission on Rapid Transit Needs as a part of its scheme for a through rapid transit route from North Cambridge via Lechmere Square, Scollay Square, Park Square and Kenmore to Harvard Avenue, Brighton. In widening the narrow section of Staniford Street, now 33 feet, a 112-foot width can be secured by taking an entire lot depth on the westerly side of the street. This in all probability would cost little more than to secure the portions of lots required for an 80-foot width. (See Fig. 51.)

The length of this project is 1,200 feet. It has been included in the fourth construction period.

PROJECT 18. COMMERCIAL STREET WIDENING

Commercial Street, running along the Boston waterfront, is at the present time 80 feet in width from Eastern Avenue to a point near Copp's Hill Terrace. Here the width is reduced to a minimum of 60 feet for a length of 800 feet through to Charles River Avenue and Prince Street. From this point on, Causeway Street, which forms the continuation of Commercial Street, has a width of 80 feet.

Due to the importance of the Causeway Street, Commercial Street and Atlantic Avenue route, this "neck" should be eliminated by providing a uniform width of 80 feet throughout.

The northerly side of Commercial Street should therefore be widened to give a continuous 80-foot street. (See Fig. 51.)

This project has been included in the fourth construction period.

PROJECT 19. CHARLES RIVER DAM TRAFFIC CIRCLE AND UNDERPASS AND CHARLES STREET WIDENING

At the Boston end of the Charles River Dam Nashua Street extension, recently laid out 92 feet wide, leads from the proposed Central Artery terminating at Portland and Causeway Streets directly to Charles Street, and also by a right-angle turn across the Dam into the Northern Artery. At this junction a large traffic circle should be laid out, 320 feet in diameter, with a single 50-foot roadway and a central space having a 100-foot radius.

With the inevitable increase in traffic at this intersection a separation of grades will undoubtedly be necessary. This can be brought about by carrying a 40-foot wide underpass beneath the circle roadway, with approaches centrally located in Charles and Nashua Streets. To provide room for the approach ramp in Nashua Street, at the same time preserving adequate surface roadways and proper sidewalks for the expected business frontages, Nashua Street should be widened to 120 feet from the new traffic circle to Lowell Street.

South of Leverett Street the proposed major radial up the Charles River follows Charles Street, which is to be widened between Leverett and Cambridge Streets. Except for a distance of about 500 feet south of Leverett Street and for a distance of about 230 feet north of Cambridge Street, Charles Street is to be widened to 140 feet, making provision for two 40-foot roadways and a central reserved strip 40 feet wide. For this purpose land is to be taken from the Charlesbank Playground and an area to more than compensate is to be reclaimed on the playground's other side by filling in the river. Near Cambridge Street there will be a connection with Embankment Road by a road for southbound traffic passing under Longfellow Bridge and thus avoiding Hamilton Coolidge Square. (See Fig. 71.)

Pedestrian access to the playground will be facilitated by the two one-way roadways and by safety isles located in the middle of the roadways, at each intersecting street. In addition, there should be at least one pedestrian overpass or underpass.

This project has recently been authorized. It has been included in the first construction period.

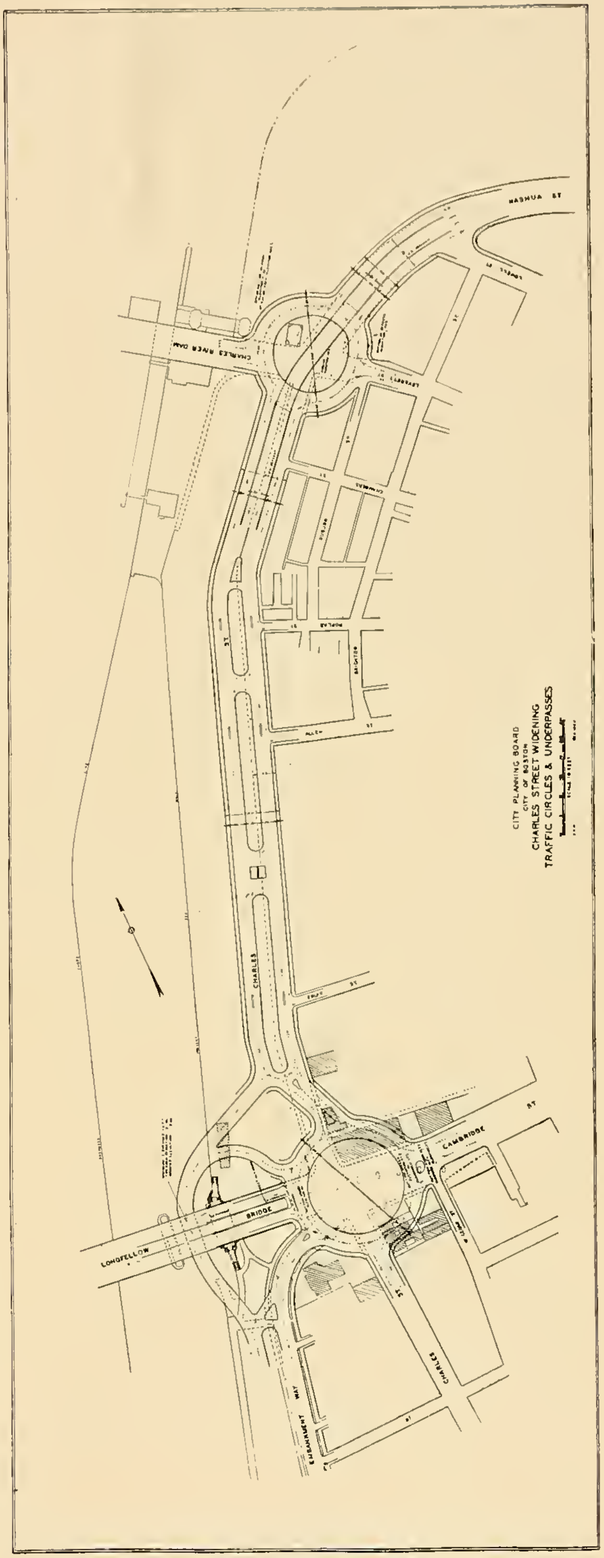


Figure 71.—Charles Street Widening, Traffic Circles and Underpasses.

PROJECT 20. LONGFELLOW BRIDGE TRAFFIC CIRCLE AND UNDERPASS

Cambridge Street at its junction with Charles Street, the approach to Longfellow Bridge and the termination of the present Embankment Road is known as Hamilton Coolidge Square. On Cambridge Street between Charles Street and West Cedar Street there is an island on which stand four large columns that support the elevated railway. Vehicular traffic is permitted in one direction only on either side of the island. Due to the existing layout and the necessity of many left-hand turns, traffic is seriously congested at this point, resulting in many long delays, so that Cambridge Street is prevented from being used to its full capacity. The problem has been studied by the Mayor's Street Traffic Survey and a system of lights for the guiding of traffic has been recommended. This, if put into effect, will improve conditions but is not intended as a complete solution. Even the 40-foot proposed by-pass road under the Longfellow Bridge, recommended as part of the Charles River Parkway improvement, will not relieve the congestion enough to permit the free flow of traffic through the square.

It is proposed to lay out a large circle, approximately 360 feet in diameter, with its center near the intersection of Cambridge and Charles Streets. This necessitates the acquisition of additional property at the street corners. Allowing for a 10-foot sidewalk and a 50-foot roadway the inner portion of the circle will be approximately 240 feet in diameter and will carry five of the piers of the elevated structure. This rearrangement will allow all vehicular traffic to move in a rotary, one-way direction and permit the interweaving of vehicles which formerly had to cross each other's path. (See Fig. 71.)

At the easterly end of the circle it is necessary to reduce the circular roadway to approximately 42 feet owing to the present location of the elevated railway piers. This, however, ought not to retard traffic, as inbound Cambridge Street traffic leaves the circle before this point is reached, passing to the south side of what is left of the island which still carries one pier of the elevated railway. At the west end of the circle, in order to allow sufficient clearance under the elevated structure, a slight grade change will be necessary. A 14-foot clearance will be gained at this point by dropping the street level about 1 foot and by a readjustment of grades on the bridge approach with a gradient of not more than 5 per cent.

The 40-foot proposed underpass at Longfellow Bridge should be one-way southbound, with a connecting road from the circle on the northerly side of the bridge to permit outbound traffic to reach the Embankment Road. The present Embankment Road is 45 feet wide. If one lane was marked off so that traffic from Longfellow Bridge, which is not heavy, could turn right and get onto Embankment Road this would alleviate the necessity of it passing all the way around the circle. All the other lanes should be used for inbound traffic. Charles Street on the north should be deflected easterly at its intersection with Cambridge Street so that there will be enough distance for weaving between its intersection at the circle and the new connection from the circle to the underpass at Longfellow Bridge.

This project has already been authorized. It has been included in the first construction period.

PROJECT 21. BERKELEY AND DOVER STREETS WIDENING

Berkeley and Dover Streets form an important crosstown connection between the proposed Charles River Parkway and South Boston via the Dover Street Bridge, as well as connecting with the radial arteries between these points. Berkeley Street is 80 feet in width from its junction with Dover Street at Tremont Street to Boylston Street. Between Boylston Street and Beacon Street Berkeley Street, while legally but 60 feet in width, is, by reason of a 10-foot building line, actually 80 feet between buildings. It should be legally opened to the full width of 80 feet, and the present roadway widened to 56 feet. Between Beacon Street and Back Street Berkeley Street is but 30 feet in width. It should be widened in this section to 80 feet and extended to the proposed Charles River Parkway, when that improvement is undertaken.

Dover Street is 50 to 60 feet in width and has a double-track car line. It is badly congested. It should be widened to a width of not less than

120 feet and a building line established along the southerly side of the Dover Street Bridge and West Fourth Street as far as Dorchester Avenue. With the proposed widening of Arlington Street (project 22) and its extension along the railroad through Castle Street (project 24) to Broadway at Albany Street, the present congestion on Dover Street will be somewhat relieved and the widening of Dover Street may be postponed until the fourth construction period.

PROJECT 22. ARLINGTON STREET WIDENING

Arlington Street is an important crosstown street linking up most of the radial routes out of the city. It is 80 feet in width from Beacon Street to Boylston Street, and approximately 70 feet in width from Boylston Street to Piedmont Street. Between Piedmont Street and Arlington Square Arlington Street has a width of only 40 feet. It should be widened to 80 feet for the entire length, a distance of 800 feet, between Piedmont Street and Arlington Square, taking 30 feet from the easterly side and eventually 10 feet from the westerly side. To avoid unnecessary building damages no taking need be made at present from the Cadets' Armory and only a 5 to 7-foot taking for the rest of the west side, but a building line 10 feet from the present line should be established from Columbus Avenue to the Boston and Albany Railroad. Along the Abraham Lincoln School the pavement may be reduced to a width of 48 feet with parking prohibited and two corners of the building allowed to project a few feet into the 10-foot sidewalk. At the Boston and Albany Railroad the present old bridge should be replaced by a new bridge 80 feet wide.

The estimated cost of this project is $460,000. It has been included in the third construction period.

PROJECT 23. DEWEY SQUARE

Dewey Square at the junction of Atlantic Avenue, Summer and Federal Streets, across which pedestrian travel to and from the South Station is forced to pass, is nearly triangular in shape. At the southerly end, near the junction of Essex Street and Atlantic Avenue, the square measures approximately 100 feet, and grows wider from this point until it becomes 210 feet wide at the northerly end where it is bordered by Summer Street. Near the middle is a triangular safety island for pedestrians.

The surface of the roadway in the square is a network of street car tracks and in addition

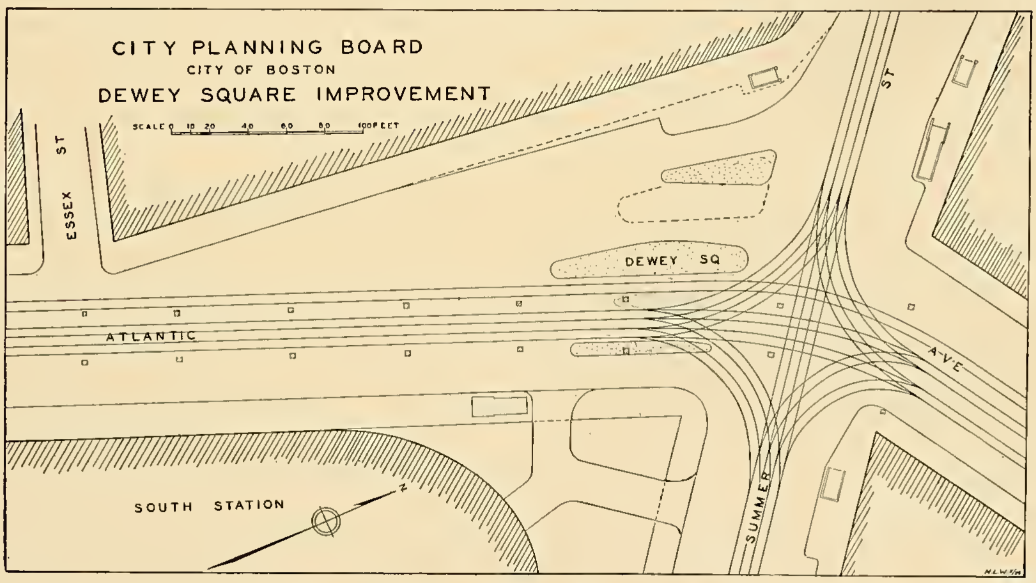


Figure 72.—Dewey Square Improvement.

The relocation of the present safety isle, the construction of two additional isles and the routing of south-bound traffic to the right of the central isle is recommended.

along Atlantic Avenue the Union Freight Railroad has a track paralleling the street car lines on their westerly side. Above the street car tracks on Atlantic Avenue is the structure of the Boston Elevated Railway, supported by columns with their bases in the roadway of Atlantic Avenue, causing additional complications for vehicular traffic. Below the street surface is a mass of water and gas pipes, sewers and telephone and electric conduits. Manholes dot the street surface. Below the pipe and wire systems are the lobby and escalators leading from the Cambridge-Dorchester Rapid Transit Tunnel.

Between the easterly side of the safety isle and the South Station pedestrians have to watch out for two-way travel. The roadway on the westerly side of the island is one-way from Summer Street towards Essex Street.

A pedestrian underpass, with suitable ramp approaches, from one side of the square to the other would be almost prohibitive in cost. A foot bridge would be very expensive owing to the necessary change that would have to be made in the elevated structure and would probably not be used enough to warrant this expenditure.

A simple improvement that could be executed without much expense and would improve conditions both for pedestrians and vehicles in Dewey Square would be the rearrangement of the central isle of safety, the addition of two smaller islands, and the widening of the sidewalk on the westerly side of the square opposite the islands. If the position of the present isle were moved easterly towards the South Station alongside of the Union Freight Railroad tracks, all northbound traffic could pass on the easterly side of the island in one direction only, and southerly traffic from Atlantic Avenue, Summer and Federal streets could pass on the westerly side in one direction. This would allow for 5 lanes of travel on each side of the central island and these lanes could be divided again with smaller islands, allowing 3 lanes between the central island and the smaller, and 2 between the smaller island and the sidewalk. This new arrangement would facilitate both north and southbound vehicular traffic as well as safe-guarding the pedestrian. (See Fig. 72.)

The estimated cost of this project is $6,000. It is included in the second construction period.

PROJECT 24. CASTLE, MOTTE AND WAY STREETS

A serious gap in Boston's thoroughfare system occurs between Arlington Square and the vicinity of Albany Street and Broadway. When Arlington Street is widened, and even more when the B & A Highway is constructed, a great deal of additional traffic will enter Arlington Square from the north and west. The route along the railroad tracks followed by the present narrow Castle, Motte and Way Streets leads by way of the Blue Hills Radial to the southern end of the Central Artery tapping the business district, and also by way of Broadway to South Boston. However, in addition to the thoroughfares at either end,— Tremont Street on the west and the Blue Hills Radial on the east,— this route crosses in its brief course three main highways: Shawmut Avenue, Washington Street and Harrison Avenue.

The most economical and efficient plan will be to build a traffic tunnel 800 feet long underpassing these three arteries, with ramp approaches at either end, and also a ramp ascending at the west end over Arlington Square onto the elevated roadway proposed to extend over the railroad to Cottage Farm Bridge. This will involve the taking of land between Arlington Square and Shawmut Avenue abutting on Castle Street and running back to Paul Street so as to produce a width of 120 feet, sufficient for two 40-foot surface roadways and a 40-foot ramp.

From Shawmut Avenue to Washington Street, Castle Street is already 50 feet wide, which will suffice for the surface street, with a 40-foot tunnel beneath. Its continuation, Motte Street, from Washington Street to Harrison Avenue, is but 28 to 33 feet wide, but may easily be widened to about 60 feet by taking little-used property of the Boston Elevated Railway partly beneath the elevated railway tracks. From Harrison Avenue to Albany Street adequate width for two surface roadways and ramp may be obtained by taking the land between Way Street, now 20 feet wide, and Seneca Street, 25 feet wide. (See Fig. 51.)

The surface widenings should be completed during the second construction period and the tunnel built in the fourth construction period when the B & A Elevated Highway is constructed (project 10). The length of the improvement is 2,000 feet. It is estimated that the cost of this project for property damage and surface construction will be $1,025,000.

PROJECT 25. DARTMOUTH AND DEDHAM STREETS WIDENING

Dartmouth and Dedham Streets are destined to become an important crosstown distributing route for traffic to and from Beacon Street at the one end, the Blue Hills Radial at the other and numerous radial streets between. Dartmouth Street is now 100 feet wide between Beacon Street and Huntington Avenue, narrowing to 72 feet for the next block and to 60 feet for the rest of its length. East and West Dedham Streets are but 50 feet wide. Dartmouth Street from Stuart Street, south, should be widened by a taking on the westerly side to at least 80 feet. Dedham Street also should be widened to 80 feet or more throughout by a taking on the easterly side. The length of the proposed widening is 4,800 feet. This project is proposed for the fourth construction period but a building line should be immediately established to prevent building that may interfere with this future widening.

PROJECT 26. MASSACHUSETTS AVENUE AND COMMONWEALTH AVENUE GRADE SEPARATION

The important intersection of Massachusetts Avenue and Commonwealth Avenue is badly congested. As 90 per cent of the travel on both of these streets is through traffic without turn a simple underpass will practically eliminate the congestion due to intersecting traffic. Owing to the fact that Massachusetts Avenue carries street car tracks and is the narrower street, it is proposed to carry Commonwealth Avenue traffic under it in a single depressed roadway 40 feet wide, with ramps beginning west of Hereford Street and ending east of the Leif Ericsson Statue at Charlesgate East. No sewers and only one large water pipe occur at this point to be relocated. Most of the cut may be constructed with earth banks, and only a small portion, close to the bridge, will require any special provision for drainage.

The estimated cost of the project, including pipe relocation, is $300,000. Each vehicle crossing this intersection will probably save on an average at least one half minute as a result of the construction of the underpass. It is estimated that in 1936 43,000 vehicles will cross this intersection each 24 hours. Therefore the time saving valued at 2 cents per minute will mean an aggregate economic saving of about $130,000 a year. This project has been included in the first construction period.

ROXBURY

PROJECT 28. GOVERNOR SQUARE

On an average 10-hour day in 1927 the count made by the Mayor's Street Traffic Survey showed that in addition to the street cars there were 38,562 vehicles passing through Governor Square. There are 6 routes entering the restricted area of the Square. This results in 22 separate and conflicting traffic movements. Dr. McClintock points out that a further complication "is to be found in the fact that existing restrictions against commercial vehicle operation on certain streets in the vicinity of this square result in throwing into it unnecessarily heavy loads of slow moving vehicles."

No really satisfactory improvement is possible until the electric car tracks and cars are removed from the surface. The latest report, by the Special Commission on Rapid Transit Needs, appointed in 1928, calls for the extension of the Boylston Street Subway beneath the Square and out Commonwealth Avenue for train service. If the Beacon Street cars also are carried underground to a station at Kenmore, a great reduction in traffic movements will result, and particularly in the confusion due to the different types of traffic — automobiles and electric cars.

The removal of the electric cars from the street surface will facilitate the construction of

an overpass to carry the through traffic of Commonwealth Avenue over the Square. This proposed overpass, 40 feet in width, should extend from a point near Kenmore Street over the Square to a point near Blandford Street. Based on 24-hour 1927 traffic, 16,700 vehicles would use this overpass. This will remove some of the most serious points of traffic interference and will simplify traffic regulation. (See Fig. 73.)

Based on an average saving of one half minute for each of these 16,700 vehicles using the overpass each day and valuing the time saving at 2 cents per minute, the proposed overpass shows an annual economic saving based on 1927 traffic of $61,000. The estimated cost of the overpass is $400,000. The estimated economic saving will therefore amount to over 15 per cent on the cost of the overpass. It is included in the second construction period.

While an overpass is regarded as an important element in any plan for a permanent solution, probably the greatest relief to the Square will come from the diversion of traffic to other routes. The proposed Charles River Parkway, on the north, will divert about 7,500 automobiles from Governor Square (based on 1927 10-hour traffic volume). The proposed B & A Highway, on the south, will divert about 8,600 cars. A total of 16,100 cars will thus be routed around the Square, thus relieving it of about 49 per cent of its present east and west through traffic. The proposed Roxbury Crosstown extending to the Charles River Parkway and the proposed overpass to the Charles River Parkway from Commonwealth Avenue at St. Paul Street will materially aid in further diverting traffic from the Square. The effect of this diversion is graphically shown in Figs. 1, 2 and 3.

PROJECT 29. CHARLESGATE VIADUCT

The Boston parkway system terminates at Charlesgate in the Back Bay. Under the present proposals, an even greater amount of traffic will be interchanged in this vicinity between the parkway and Commonwealth Avenue, Beacon Street, and the proposed Charles River Parkway. Grade separation to some degree, at least, is clearly necessary to prevent great congestion and reduction in capacity of these intersecting routes.

In 1926 the Boston Park Department made public a plan by Arthur Shurtleff for widening the parkway bridge over the Boston and Albany Railroad, and carrying a ramp from its center to a viaduct passing over all intervening streets to the shore of the Charles River Basin and a

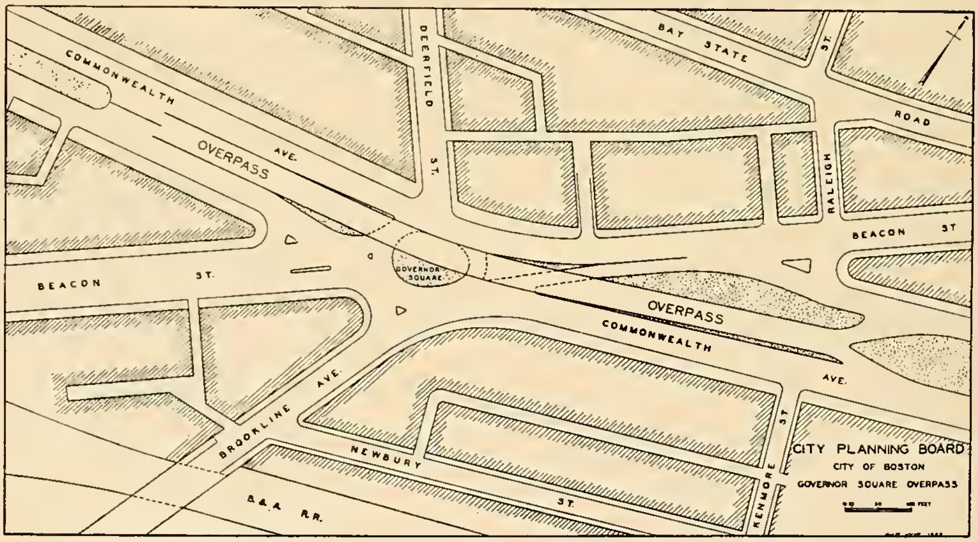


FIGURE 73.—GOVERNOR SQUARE OVERPASS.
The through traffic of Commonwealth Avenue is carried over the square on a 40-foot wide viaduct. It is assumed that the surface tracks will be placed in subways.

possible future bridge across it. Ramps on both sides of this viaduct were planned to connect with the northern roadway of Commonwealth Avenue and with a proposed Charles River Parkway. Either this scheme, or a similar one which will reduce intersecting vehicular movements, should be constructed during the third construction period.

PROJECT 30. MUDDY RIVER PARKWAY, WESTERN SIDE

The Boston parkway system through the Fens to Franklin Park and beyond is already crowded and will require provision for larger capacity of travel. The most effective way, and the one least destructive of the great beauty of this series of parks, designed by the elder Olmsted, will be to develop and connect the drives on the west bank of Muddy River so as to form a continuous roadway for southbound travel similar to that now on the east bank, which may then be reserved for northbound travel. All except the two ends of this project will lie in the Town of Brookline. It has a total length of 12,400 feet, only 3,200 of which is in Boston.

The west bank roadway will run from the present double roadway section of the Fens at Audubon Road. It will be constructed at first close to, and in several places over, the Boston and Albany Highland Branch tracks and will then connect with and utilize the present "Park Drive," "River Road" and "Pleasure Drive," with all curves reduced in sharpness to safe radii. As shown on Fig. 61, the Roxbury Crosstown would cross over the parkway on a viaduct and there would be a ramp from the viaduct to the parkway. The west bank roadway would pass under Audubon Road close to the railroad. Little additional land is required for this portion of the improvement. The portion of this project north of Park Drive should be constructed at the same time as the Roxbury Crosstown.

At Chestnut Street Boston (West Roxbury) is reentered. From there a second roadway should be constructed substantially parallel to the present roadway along Perkins Street opposite Jamaica Pond, securing as much additional land as is necessary. Cutting across the corner of the park near the Francis Parkman Memorial this second roadway should be connected into Prince Street and follow it as far as the Arborway, leaving the present beautiful road at the edge of the pond untouched. On this double roadway portion the nearer roadway to the pond should be designated for northbound travel, thereby facilitating three distinct traffic movements: (1) From the south into the proposed Jamaica Pond-Cleveland Circle crosstown route, which branches west opposite Jamaica Pond; (2) from this crosstown route in a general easterly direction into Perkins Street; and (3) from Perkins Street in a general westerly direction into Chestnut Street, Brookline. The portion of this project south of Chestnut Street has been included in the fourth construction period.

PROJECT 31. RIVERWAY AND HUNTINGTON AVENUE GRADE SEPARATION

These two intersecting routes both carry a heavy automobile traffic. The trolley cars on Huntington Avenue add to the traffic difficulties. By constructing an overpass 44 feet wide in the center of Huntington Avenue to carry both through motor vehicles and electric cars congestion at this point will be much reduced, though, owing to considerable turning movements, a traffic control system will still be necessary for the surface intersections.

A descending grade on Huntington Avenue, west of South Huntington Avenue, will facilitate overpassing the Riverway roadway at a sufficient height to accommodate passenger automobiles. But as Huntington Avenue is only 80 feet wide at this point a 30-foot strip of land should be taken on its south side so as to secure 110 feet in all. The viaduct will continue along Huntington Avenue to a point on the Brookline side beyond the line of the present "Pleasure Drive." Here a short new road should be constructed continuing this Drive directly through to River Road, Brookline. The viaduct will end in a ramp reaching grade at Brookline Avenue. This section, known as Washington Street, Brookline, is 90 feet wide and will not require widening. This project has been included in the third construction period.

BRIGHTON

PROJECT 32. CLEVELAND CIRCLE — JAMAICA POND CROSSTOWN (CONNECTION VIA ELIOT AND LEE STREETS, BROOKLINE)

The Brookline Planning Board has proposed a crosstown route to extend from Cleveland Circle across Brookline to the Boston parkway at Jamaica Pond. This new route would form a part of what should be a very important metropolitan circumferential artery extending from Quincy Shore to Revere Beach.

Only the two ends of this project lie within the City of Boston. At the north end a short connecting link is necessary, extending from Beacon Street as relocated west of Cleveland Circle to Eliot Street as recently laid out in Brookline. Since it would seem impractical to have another street enter Cleveland Circle, for the reason that there will not be sufficient distance between the various intersecting streets in the Circle for weaving, it will be better to relocate Beacon Street for a distance of 1,200 feet so that it will enter the Circle somewhat nearer the Boston and Albany Railroad and run nearly parallel to the railroad, thus eliminating the present bend. Eliot Street should be extended north under the railroad to the relocated Beacon Street a distance of 600 feet.

At the south end of this crosstown route it will be necessary to construct a new road in Boston a distance of 600 feet from the intersection of Francis Parkman Drive and Perkins Street to a new route recommended by the Brookline Planning Board extending through the valley to a junction with Cottage Street near Dudley Street.

This project is included in the fourth construction period.

PROJECT 33. MARKET STREET AND CHESTNUT HILL AVENUE

The principal circumferential traffic route proposed in the Brighton district is a part of the metropolitan traffic circuit lying outside the most congested portions of the region but keeping for the most part within 5 miles of the State House. Many parts of this route are already more or less adequately constructed. When completed it will not only provide a connection between the communities along its way but will also afford an expeditious route for traffic approaching the city by any radial route, and destined for some part of the region that is not on this same route, to transfer to another route, thus greatly reducing traffic congestion at the center.

This circumferential route begins on the north outside the city in Revere, following either Squires Road and State Highway Route No. 60 through Malden and Medford Square to Mystic Valley Parkway, or Revere Beach Parkway and some improved connection from its present western end to Mystic Valley Parkway. The latter is then followed to Alewife Brook Parkway, which is now under construction south from its present terminus to Fresh Pond Parkway in Cambridge.

Across the Charles River (see project 35) Soldiers Field Road is followed to Market Street and Chestnut Hill Avenue in Brighton. Continuing south, the circumferential route will pass under the Newton Circuit of the Boston and Albany Railroad into Eliot Street, recently laid out by the Town of Brookline as a part of its section of the route extending through to Jamaica Pond (see project 32).

The southern portion of this circumferential route, which lies well within the city limits, is already constructed full width. It follows the Arborway to Forest Hills and the Southern Artery thence to Neponset Bridge.

Market Street forms an extension of Soldiers Field Road southward from Western Avenue. It is at present 66 feet wide, with Boston Elevated Railway car tracks in the center. It should be widened to 100 feet by a taking on the westerly side. In connection with the North Beacon Street widening (project 7) a grade separation is proposed at Market Street.

Chestnut Hill Avenue is a direct continuation of Market Street south of Washington Street. It should be widened to a width of 90 feet. For a short distance, to a point just south of Union

Street, this should be accomplished by a present taking of the land, and for the rest of the way to Commonwealth Avenue, a distance of 3,100 feet, by establishing a setback building line.

The total length of the project is 9,300 feet. Not including any allowance for the establishment of a building line, the estimated cost of this project is $825,000. It is included in the third construction period.

PROJECT 34. NONANTUM ROAD EXTENSION

The metropolitan parkway along the Charles River, known as Soldiers Field Road, now stops at Western Avenue opposite Market Street. At a distance of 4,600 feet westerly from Western Avenue, Nonantum Road is open through the metropolitan park holdings along the upper river and connects with three different short minor streets leading into Galen Street and Nonantum Square, Newton. The parkway along the south bank from the Charles River Dam into Newton should be completed by the Metropolitan District Commission by constructing this seven eighths mile link between Western Avenue and North Beacon Street. By skilled planting, the industrial properties along this section may be sufficiently screened to minimize any detrimental effect they might have on the parkway.

An overpass should be provided at the junction of Nonantum Road and North Beacon Street. This project has been included in the first construction period. Its construction has been authorized by chapter 371 of the Acts of 1929.

PROJECT 35. SOLDIERS FIELD ROAD AND FRESH POND PARKWAY CONNECTING BRIDGE AND APPROACHES

Land has long since been acquired for extending Fresh Pond Parkway across Mt. Auburn Street to the Charles River at Gerry's Landing. Here a new river bridge to Soldiers Field Road will give access both down stream to the Charles River Parkway (project 6) and up stream to Market Street at Western Avenue. It will also relieve traffic conditions at the Harvard Stadium. The bridge and the small amount of road construction between it and Soldiers Field Road should be carried out by the Metropolitan District Commission in cooperation with the Division of Metropolitan Planning. It is included in the third construction period.

PROJECT 36. NORTH HARVARD STREET RELOCATION AND CONNECTION TO PARKWAY VIA STADIUM ROAD

In the portion of Brighton between the Cottage Farm Bridge and Market Street, the only practicable crosstown route is by way of North Harvard Street, connecting Harvard Avenue, which leads to Coolidge Corner, Brookline Village and points south, with Boylston Street, Cambridge, which leads to Harvard Square and points north.

North Harvard Street is now but 30 feet wide for much of its length and 60 feet wide from Western Avenue to Charles River. This project has been studied by the Division of Metropolitan Planning. Owing partly to grade crossing problems at the Boston and Albany Railroad the through route is deflected northeast from the end of Harvard Avenue along Cambridge Street, which is 80 feet in width, to North Harvard Street, which is to be widened for two blocks to 80 feet. Beyond Parker Avenue, the present roundabout location of North Harvard Street is not followed, but a new 80-foot street is to cut directly across, utilizing Rena Street, and crossing Western Avenue at right angles, to rejoin North Harvard Street near Smith Street. From here North Harvard Street is to be widened to Larz Anderson Bridge, and a new 80-foot street is also proposed extending from near Smith Street at right angles to North Harvard Street to Soldiers Field Road at Stadium Road, thus affording a direct connection with the proposed river bridge at Gerry's Landing and the circuit parkway to the north.

The cost of this project has been estimated by the Division of Metropolitan Planning at $370,000. Its length is 5,600 feet. It is included in the third construction period.

PROJECT 37. WESTERN AVENUE BUILDING LINE

Western Avenue cuts across the sweeping bend of the Charles River around Soldiers Field, saving four-fifths of a mile in distance and avoiding

the most congested portion of the traffic to the Harvard Stadium. Western Avenue also affords a direct route from Watertown on the west to the industrial portions of Cambridge and points beyond. It is at present 66 feet wide for about one half its length, from the Charles River to Spur Street, near North Harvard Street, and to the west varies from 50 to 60 feet in width. The widening should be on the northerly side. For much of the length of Western Avenue the land needed for widening is entirely vacant and for the balance the improvements are practically all old frame dwellings, with a few small stores of comparatively little value, and frequent vacant lots between. Building lines should be established throughout to facilitate an eventual widening to 90 feet. The length of the project is 7,700 feet. The establishment of the building line is included in the first construction period.

PROJECT 38. SAINT PAUL STREET CONNECTION

When the parkway that has been recently opened along the Charles River from Soldiers Field Road at Cambridge Street, Brighton, to Cottage Farm Bridge is extended through to Longfellow Bridge it will become important to facilitate the transfer of traffic between its inner portion and outer Commonwealth Avenue. This may most effectively be done by widening Saint Paul Street and constructing a two-way ramp from the center of the parkway curving over its southern roadway into this street. Thence traffic bound out will turn into Commonwealth Avenue at grade while traffic bound in from Commonwealth Avenue will rise by a one-way ramp in its center and curve over the northern roadway of the avenue into and along Saint Paul Street.

This project has been included in the third construction period. It should be constructed by the Metropolitan District Commission.

PROJECT 39. COMMONWEALTH AVENUE, BRIGHTON, GRADE SEPARATIONS

Commonwealth Avenue is 160 feet wide from Governor Square to Brighton Avenue and 200 feet wide from Brighton Avenue to Chestnut Hill Avenue. It has been proposed to extend the rapid transit system out Commonwealth Avenue from Governor Square as far as Washington Street, Brighton. One proposal developed by the Division of Metropolitan Planning provides for a continuance of the rapid transit tracks in a reserved strip in the center of Commonwealth Avenue, but with provision for carrying the rapid transit tracks over or under such important intersections as Essex Street at the Cottage Farm Bridge, Brighton Avenue and Harvard Avenue.

From the standpoint of vehicular traffic it is very desirable to provide for a separation of roadway grades at the Cottage Farm Bridge and at Harvard Avenue and probably at a later date at Washington Street and at the junction of Brighton Avenue with Commonwealth Avenue.

Traffic congestion at the Essex Street end of the Cottage Farm Bridge is very serious. An overpass should unquestionably be constructed to carry vehicular traffic across this intersection. The overpass for vehicular traffic should be made wide enough to provide also for rapid transit trains or street cars, unless some other method of rapid transit extension is decided upon.

There is also serious traffic congestion at Commonwealth Avenue and Harvard Avenue. Commonwealth Avenue is 200 feet wide at this point. There is adequate space to provide for an overpass for vehicular traffic and also for railway tracks including a rapid transit station and station platforms. In addition, there will be ample room for surface roadways on either side of Commonwealth Avenue to take care of interchange traffic and of all vehicles going to and from the stores.

These two projects have been included in the third construction period.

Figure 74.—Southern Portion of Rutherford Avenue Widening (Project 40).

CHARLESTOWN

PROJECT 40. RUTHERFORD AVENUE WIDENING

One of the cardinal radial routes out of the heart of the city is that leading to Everett and the north. From the Central Artery Washington Street North leads across the Charles River to City Square, Charlestown; and Rutherford Avenue leads thence to Sullivan Square and the bridge over Mystic River to Broadway, Everett. Rutherford Avenue, however, is so narrow, varying from 50 to 60 feet in width, that it tends to reduce the amount of traffic that would otherwise use this route. It should be widened to 86 feet from City Square to the City Square by-pass at Union Street and to from 100 to 125 feet from Union Street to Sullivan Square.

The total length of the project is 5,600 feet. It is estimated that the land and buildings to be taken will cost $1,400,000. New street construction is estimated at $550,000, making a total for the project of $1,950,000. It is included in the second construction period. (See Fig. 74.)

It is estimated that by 1940 there will be a daily average (24 hours) of 26,000 vehicles using Rutherford Avenue, or a yearly total of 8,580,000 vehicles. On this basis the estimated annual economic saving to the users of the improved route is $364,000, or 18 per cent on the estimated cost.

PROJECT 41. CITY SQUARE BY-PASS

A considerable amount of traffic from southwest to northeast by-passes the center of Boston by traversing the Cambridge bank of the Charles River, Prison Point Bridge over the Boston and Maine Railroad yards into Charlestown and Chelsea Street across the Mystic River to Chelsea and beyond. Much more traffic could be accommodated along this general route if it were shifted northward in its middle portion so as to avoid the intricate intersection and congestion at City Square.

A street 80 to 86 feet in width should be laid out, beginning at Chelsea Street with a widening on the southerly side of Adams Street to Winthrop Square, around which traffic will flow one-way on each side. From Winthrop Square a new street is planned, curving around to connect with the present end of Union Street, which is to be widened on its southerly side to Rutherford Avenue. Rutherford Avenue widening is then followed one block northwest to Austin Street, which, with Chapman Street, is to be widened to form an adequate approach to Prison Point Bridge. The length of the improvement is 2,000 feet.

The estimated cost of this project from Chelsea Street to Rutherford Avenue is $840,000. It is estimated each vehicle using this route will on the average save $1\frac{3}{4}$ minutes over the present route. It is also estimated that by 1940 there will be a daily average of 10,700 vehicles using the proposed route. Valuing the time saving at 2 cents a minute the aggregate annual economic saving would be $136,000 or 16.2 per cent on the estimated cost of the project. It is included in the second construction period.

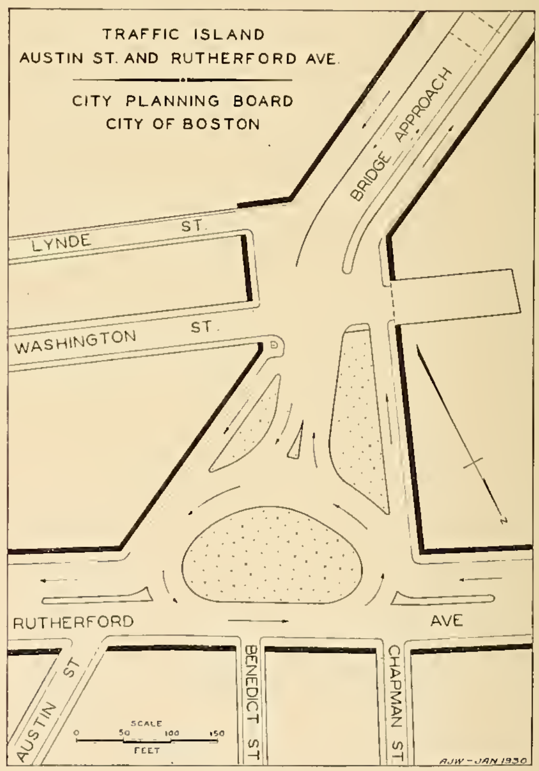


Figure 75

PROJECT 42. PRISON POINT BRIDGE APPROACH

In Charlestown, with the projected improvement of Rutherford Avenue to the northwest and the City Square by-pass to the northeast, Prison Point Bridge, which connects with the roads along Charles River Basin, will be called upon to bear a greatly increased traffic and its present approaches in Charlestown will become quite inadequate. To remedy this, the triangular block bounded by Chapman Street, Rutherford Avenue and Austin Street should be acquired and a traffic island constructed so as to permit left hand turns without stopping traffic as shown in Fig. 75.

In the square between Washington Street and the bridge approach traffic congestion is caused by left hand turns along the east side of the approach into Front Street and the Boston and Maine Railroad yards. Whenever the bridge is reconstructed the approach should be shifted to the center of Austin Street so as to leave a roadway on either side of the bridge approach.

The estimated cost of this project is $165,000. Approximately 16,000 vehicles are expected to use this approach on a typical 10-hour day in 1940. It is included in the second construction period.

EAST BOSTON

PROJECT 43. CHELSEA STREET BRIDGE RECONSTRUCTION

The present bridge over Chelsea Creek at Chelsea Street is inadequate to handle the increased traffic that will use the bridge for access to the East Boston Tunnel. The bridge should be relocated so as to secure a better alignment and reconstructed with a clearance of about 20 feet above mean high water so as to clear small vessels.

This project has been included in the third construction period.

PROJECT 44. BORDER STREET WIDENING AND BRIDGE TO CHELSEA

With the construction of the East Boston Tunnel a more adequate street connection will be required from its portal to central Chelsea. The widening of Porter Street (project 50) will provide a good route from the Tunnel portal to Central Square. To avoid relatively expensive property along Meridian Street, Border Street, which parallels it a short block to the west, should be widened to a width of 90 feet from Central Square to White Street. This widening should be on the westerly side for one block, and then swing to the easterly side for the remaining distance. Beyond White Street a plaza should be constructed taking the three small blocks between Border and Meridian Streets as far as Condor Street. This will provide a proper bridge approach from Meridian, Marion and White Streets and connections with West Eagle, Falcon, Condor and Nay Streets, advantage being taken of the differences in grade in this vicinity.

The bridge across Chelsea Creek should be rebuilt on a new alignment slightly west of the present location, to a width of not less than 70 feet, and at a height to give a clearance of 40 feet, sufficient for tugs and barges. It is estimated that between 60 and 70 per cent of the drawbridge openings would be obviated by such construction. This would greatly expedite the movement of trolley and vehicular traffic as well as shipping movements. The length of the proposed improvement including the bridge is 4,700 feet. This project is included in the third construction period.

PROJECT 45. BOARDMAN STREET WIDENING AND EXTENSION

There is at present no highway bridge across Chelsea Creek and Belle Isle Inlet between Chelsea Street and Bennington Street, a distance of over 2 miles. The North Shore Radial is designed to cross Belle Isle Inlet in a northeasterly direction, but as the outer districts develop an additional bridge will be needed across Chelsea Creek in a northwesterly direction. The extension of Boardman Street from Orient Heights to Eastern Avenue in Chelsea seems to be

the logical location for it. Boardman Street is at present 50 feet wide. As it is flanked on its south side for almost its entire length by vacant property, either in the hands of the City of Boston for a playground, or belonging to the East Boston Company, it may now readily be widened to 80 feet. Its extension should also be of this width except that where it crosses the Boston and Maine freight tracks and Chelsea Creek the width may be reduced to 60 feet, parking along these portions being unnecessary.

The length of the project is 4,650 feet. It is included in the fourth construction period.

PROJECT 46. CURTIS STREET WIDENING AND EXTENSION

Curtis Street extends 50 feet in width from Chelsea Street to Bennington Street. It should be widened to at least 80 feet and extended southerly from Bennington Street along the line of Harmony Street to the proposed extension of Cleveland Street. Harmony Street is now opened between Bennington Street and Milton Street. There should be a widening on the easterly side of Harmony Street. The widening on Curtis Street should be along its westerly side. The length of this project is 2,150 feet. It has been included in the fourth construction period.

PROJECT 47. CLEVELAND STREET WIDENING AND EXTENSION

Cleveland Street has been laid out parallel to the Boston, Revere Beach and Lynn Railroad. It has been opened for but a short distance between Neptune Road and Prescott Street. It should be widened from its present width of 40 feet to a minimum of 120 feet and extended southwesterly along the right of way of the Boston, Revere Beach and Lynn Railroad as far as Porter Street and northeasterly to the proposed extension of Curtis Street. The length of this project is 4,600 feet. It has been included in the fourth construction period.

PROJECT 48. MAVERICK STREET EXTENSION ON COMMONWEALTH LANDS

In the development of the Airport and adjacent land for docks along the harbor front Maverick Street should be widened from 50 to 100 feet from the point where the ramp roadway from Porter Street extension meets it (see project 50) to its present end, and extended at this width along the bulkhead line to a point about 2,400 feet southeast of Jeffries Street, where eventually there may be a landing wharf for a ferry to the Army Base in South Boston. The length of this project is 3,800 feet. It has been included in the fourth construction period.

PROJECT 49. AIRPORT — ARMY BASE FERRY

At some future date traffic will increase sufficiently so that it will be desirable to complete the shore-line vehicular route by-passing the congested portions of the city via L Street and Harbor Street in South Boston and Maverick Street and Cleveland Street in East Boston, by installing a ferry between Northern Avenue, at the north end of Harbor Street extended, and the east end of Maverick Street extended. This will effect some saving in distance over the route to be afforded by the relocated South Ferry (see project 51) and avoid congesting further the approaches to this latter ferry as traffic continues to increase. It has been included in the fourth construction period.

PROJECT 50. PORTER STREET WIDENING

From the traffic plaza planned at the easterly portal of the proposed East Boston Tunnel Porter Street leads northwest to Central Square and the Border Street approach to Chelsea (project 44) and southeast towards the Airport and the developing industrial district in this region. It should be made 100 feet wide by taking 50 feet on its southerly side. The crossing over the Boston and Albany freight railroad should be correspondingly widened by an additional bridge alongside the existing one. The Boston, Revere Beach and Lynn narrow gauge railroad should also be bridged, with ramps with 5 per cent grades on either side, thus providing direct access to the Airport and the rest of the recently filled land nearby. From a traffic circle planned at this point Porter Street is to be extended south to Maverick Street.

This improvement in conjunction with the tunnel route under the harbor will bring the Airport within a 5-minute automobile ride of the tunnel portal in Central Boston and will thus result in a great saving of time in passing to and from the center of the city. Porter Street will also furnish a direct connection with all points north by way of the proposed North Shore Radial.

The portion of this project north of Bremen Street has been included as part of the cost of the East Boston Tunnel. The balance of the project is estimated to cost $262,000 for land and $295,000 for 3,700 feet of new street construction, including two bridges with approaches; a total of $557,000. It has been included in the first construction period.

PROJECT 51. SOUTH FERRY RELOCATED TO SOUTH BOSTON

South Boston should be connected by ferry with East Boston so that trucking between the freight terminals and warehouses of South Boston and points to the north will not be forced to pass through Boston's congested central district.

With the present North Ferry modernized and the East Boston Tunnel constructed, the southern terminus of the South Ferry may well be shifted from its present location near Commercial Street in downtown Boston to the site of Pier 3, South Boston. This change was recommended by the Boston Planning Board in December, 1926, at which time it was pointed out that the various freight terminals and warehouses in South Boston originate a great deal of traffic that would be benefited by such a ferry route; and that by diverting this traffic to the ferry congestion on Atlantic Avenue would be greatly relieved.

It was estimated in 1926 that the proposed new ferry slip in South Boston would cost $1,000,000. It is estimated that the new ferry, if opened in 1934, would at once carry a daily traffic of 2,000 vehicles. It has been included in the third construction period.

PROJECT 52. EXTENSION OF NEPTUNE ROAD

Neptune Road, which now extends as a park boulevard from Bennington Street to World War Memorial Park, should be extended as a parkway near the present shore line to Belle Isle Inlet and the Winthrop Bridge. Plans for this shore parkway have been prepared by the Boston Park Department and an Act to authorize its construction by the Metropolitan District Commission has been introduced on the petition of the Mayor of Boston. This project has been included in the first construction period.

SOUTH BOSTON AND DORCHESTER

PROJECT 54. NORTHERN AVENUE EXTENSION

To complete the marginal highway system Northern Avenue should be extended east at its full width of 100 feet from its present terminus east of the Fish Market to the end of Harbor Street extended, a distance of 300 feet. This project includes only the ends of two vacant piers and land under water owned by the Commonwealth of Massachusetts, which will presumably be transferred to the City for street purposes as the use of the waterfront develops. It has been included in the fourth construction period.

PROJECT 55. HARBOR STREET EXTENSION AND TAKING BY CITY OF BOSTON

Harbor Street is at present a short private street, 75 feet wide, on Commonwealth property between Summer Street extension and the entrance to the Boston Dry Dock, now the property of the U. S. Navy. It is shown on maps of the State Department of Public Works as extending through at its full present width to the waterfront of the main channel at Northern Avenue extended. About one-half of this width is now encumbered by a low wooden building on land rented for factory purposes. The entire

Figure 76.—Northern End of Dorchester Avenue Widening and Underpass.

Figure 77.—Old Colony Avenue Widening Showino Underpass at Dorchester Street and Traffic Circle at Columbia Road.

street for a distance of 1,400 feet should eventually be opened its full width and transferred to the City as an integral part of its street system, thus connecting Northern Avenue, the marginal route on the north side of South Boston, with the properties around the Reserved Channel and parts of South Boston beyond. It has been included in the fourth construction period.

PROJECT 56. DORCHESTER STREET EXTENSION ACROSS RESERVED CHANNEL

If the arm of the harbor south of the Army Base, known as the Reserved Channel, is ever shortened so as to eliminate the L Street Bridge, Dorchester Street should be extended at its present width of 60 feet or wider from East First Street along the arm of the channel known as the "Water Passageway" and thence to Summer Street opposite Harbor Street, thus completing the major street system for this industrial region. The portions of this future street not within the limits of the legal channel may be constructed as local streets whenever the adjacent wharves are filled in and built over. The length of this project is 2,400 feet. It has been included in the fourth construction period.

PROJECT 57. SUMMER AND L STREETS WIDENING

Summer Street and its continuation, L Street, form an important thoroughfare both for direct access to a large section of South Boston from the City Proper and as a by-pass of the more congested section traversed by Dorchester Avenue for travel from Old Colony Parkway, Dorchester and beyond destined either for the South Boston docks or warehouses or for Downtown Boston. Summer Street is now 100 feet wide from Dewey Square as far as Harbor Street. This width may readily be continued by constructing a retaining wall and filling behind it for a distance of about 250 feet to the Reserved Channel, where a new bridge 80 feet wide should replace the present narrow one. Between the Reserved Channel and East First Street Summer Street is 70 feet in width. It should be widened to 100 feet by a taking on the easterly side. Between East First Street and Columbia Road it is but 50 feet in width and should be widened to 100 feet by a taking on the westerly side.

The length of this project is 5,400 feet. It has been included in the fourth construction period.

PROJECT 58. D STREET WIDENING

D Street directly connects the warehouse, industrial and shipping district adjacent to Summer Street Extension with Dorchester Avenue and points beyond. It is now 80 feet wide from Summer Street south to a point near Claflin Street and only 50 feet wide for the rest of its length. However, as far as Cypher Street it is flanked by land of the Commonwealth, along which the plans of the State Department of Public Works show an 80-foot street. The 15-foot strips on either side of the present 50-foot street should be transferred to the city for street purposes. To serve the traffic needs the remaining distance to Dorchester Avenue should eventually be widened to 80 feet.

The length of this project is 3,700 feet. It has been included in the fourth construction period.

PROJECT 59. DORCHESTER AVENUE AND OLD COLONY AVENUE WIDENING

The Old Colony Parkway is the principal direct route from Quincy and the South Shore to central Boston. North of Columbia Circle it is continued by a portion of Columbia Road to Preble Street, and thence by Old Colony Avenue and Dorchester Avenue into the heart of the city. The two latter should be widened to take care of the traffic that it is estimated will be delivered into this route. (See Fig. 78.)

Beginning at Preble Street, where a traffic circle 290 feet in diameter should be constructed whenever Preble Street is widened, this thoroughfare is to be 140 feet wide, the widening being on the west side of Old Colony Avenue, and is to be constructed with two 40-foot roadways and a 40-foot reserve strip between. Dorchester Street will be underpassed by a single 60-foot roadway, with local service roads 30 feet wide at grade on each side. Beyond this ramp Old Colony Avenue is to be 120 feet wide with a 20-foot reserve strip in the center.

Dorchester Avenue from Old Colony Avenue to Broadway should likewise be 120 feet wide, leaving its present 40-foot pavement undisturbed and placing a new 40-foot roadway in the additional strip of land taken on its east side. At the New York, New Haven & Hartford Railroad a new bridge will be constructed, leaving the present bridge for traffic in one direction only. At Broadway the congested corner of Macallen Street and Dorchester Avenue should be cut back to the line of the Broadway Bridge approach to permit freer movement of traffic.

As a considerable portion of through traffic will leave Dorchester Avenue by the Dover Street and Broadway Bridges, north from Broadway to Fort Point Channel Dorchester Avenue is proposed to be 100 feet wide, with the widening chiefly on the west side to avoid expensive buildings. North of Fort Point Channel Dorchester Avenue along the sea wall of the Channel is already 90 feet wide, which will suffice.

From Fifth Street to First Street there exists between the roof of the Dorchester Tunnel and the grade of the street a short surface-car two-

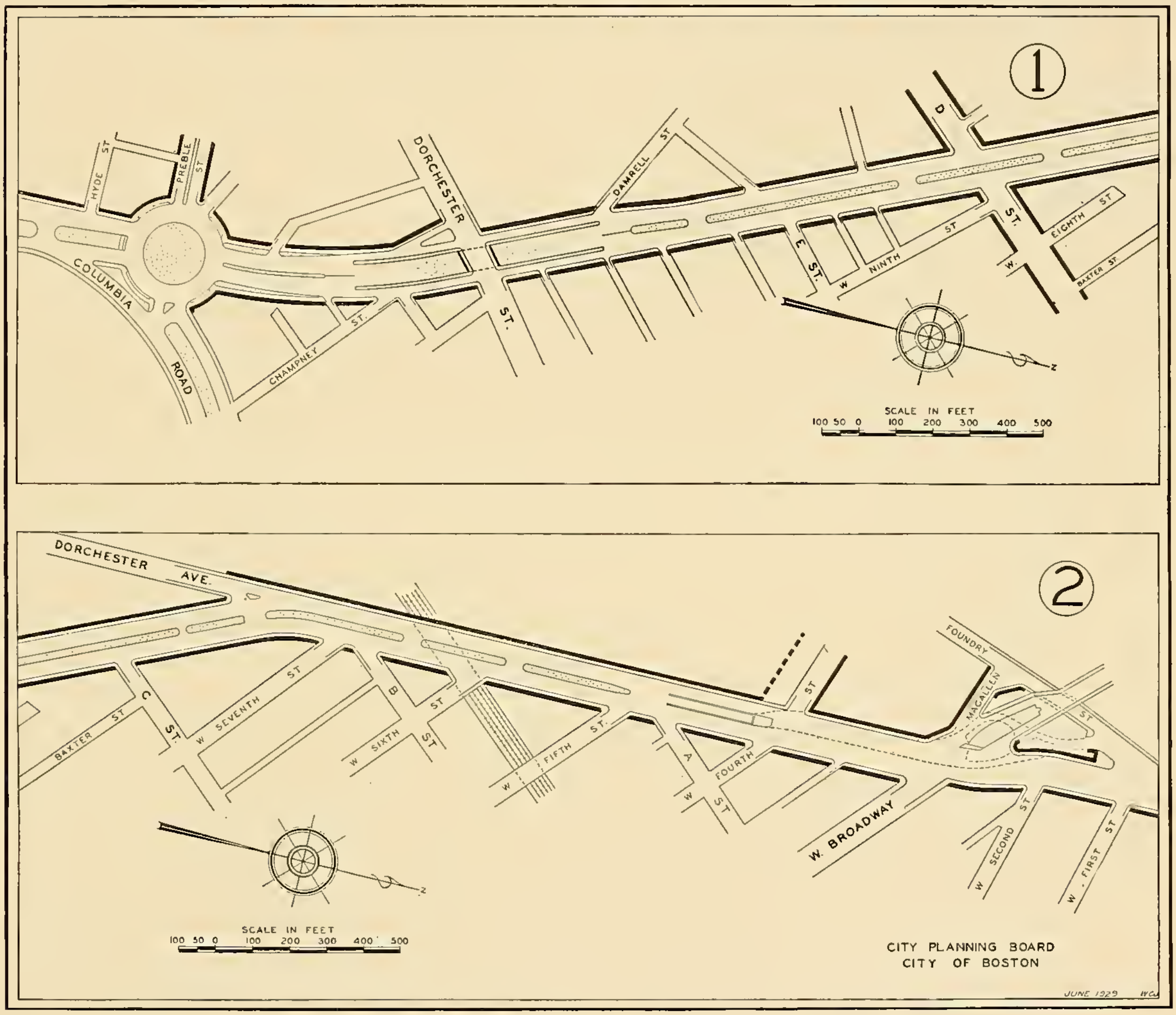


Figure 78.—Plan of Dorchester Avenue and Old Colony Avenue Widening.
The upper plan shows a proposed traffic circle at the junction of Old Colony Avenue, Columbia Road and a widened Preble Street; also an underpass at Dorchester Street. The lower plan shows in dotted lines at the right the unused surface car subway, which it is proposed to use as a two-lane underpass for south-bound vehicles.

track subway with ramps to the street at either end, not used since the extension of the Dorchester Tunnel reduced the amount of street car traffic at Broadway station. This subway it is proposed to use without radical alteration for a two-lane vehicular tunnel in a southerly direction, underpassing Broadway and Fourth Street (Dover Street Bridge) and thereby avoiding most of the traffic confusion due to left-hand turns by northbound traffic. Its entrance is on Foundry Street, which is not satisfactory for permanent use but will serve until traffic becomes so dense as to require its being removed to the center of Dorchester Avenue.

Fort Point Channel may soon be filled in as a part of the proposed South Bay improvement, which will affect somewhat the location of the 100-foot thoroughfare at this point. For this reason costs north of First Street have not been included. The length of the project is 5,800 feet. The total estimated cost for property and construction is $1,420,000. It has been included in the second construction period.

PROJECT 60. PREBLE STREET WIDENING

An important crosstown route is formed by Massachusetts Avenue, Southampton Street and Preble Street to Columbia Road. Massachusetts Avenue, of ample width, constitutes more than half of this route.

At the eastern end, Preble Street, which is only 1,250 feet long, is 25 feet wide. It should be widened to 80 feet with extra width at Andrew Square to conform to the plan for traffic regulation at this point. Dorchester Avenue also should be widened on its east side for about a block in each direction from Preble Street to facilitate passing traffic through the Square. The widening of Preble Street itself should be partly on each side so as to take the least expensive property and substantially improve the alignment of the present street. A proposed layout for this improvement is printed in the Twelfth Annual Report of the Boston Planning Board, 1925, page 31.

To accommodate the travel at the intersection of Preble Street and the widened Old Colony Avenue a 290-foot traffic circle is proposed.

Preble Street has been included in the fourth construction period.

PROJECT 61. SOUTHAMPTON STREET BUILDING LINE

Southampton Street, between Andrew Square and Massachusetts Avenue, is now 70 feet wide, and owing to the fact that for a large portion of its length it is bordered by railroad yards where little parking is likely to occur, an ultimate width of 80 feet will suffice. To accomplish this a 10-foot building line should be established on the south side for the entire length of the street. The length of this project is 4,150 feet. It has been included in the first construction period.

PROJECT 62. VICTORY PARKWAY

The opening of the Old Colony Parkway has still further increased congestion on the Neponset Bridge. This congestion can be relieved by constructing a parkway connection from the Old Colony Parkway to the Quincy Shore Drive. The new parkway route would leave the Old Colony Parkway at Freeport Street, where a traffic circle should be constructed, follow Neponset Street to Victory Road, thence over a new bridge to Squantum, and thence to a connection with the Quincy Shore Drive.

The length of this project is 10,000 feet. It has been included in the fourth construction period. It should be constructed by the Metropolitan District Commission.

Figure 79.—Centre Street Widening South of Arborway.
This portion of Centre Street, widened to 140 feet, is designed as a parkway connection between Arborway and Brook Farm Parkway. (See Figure 84.)

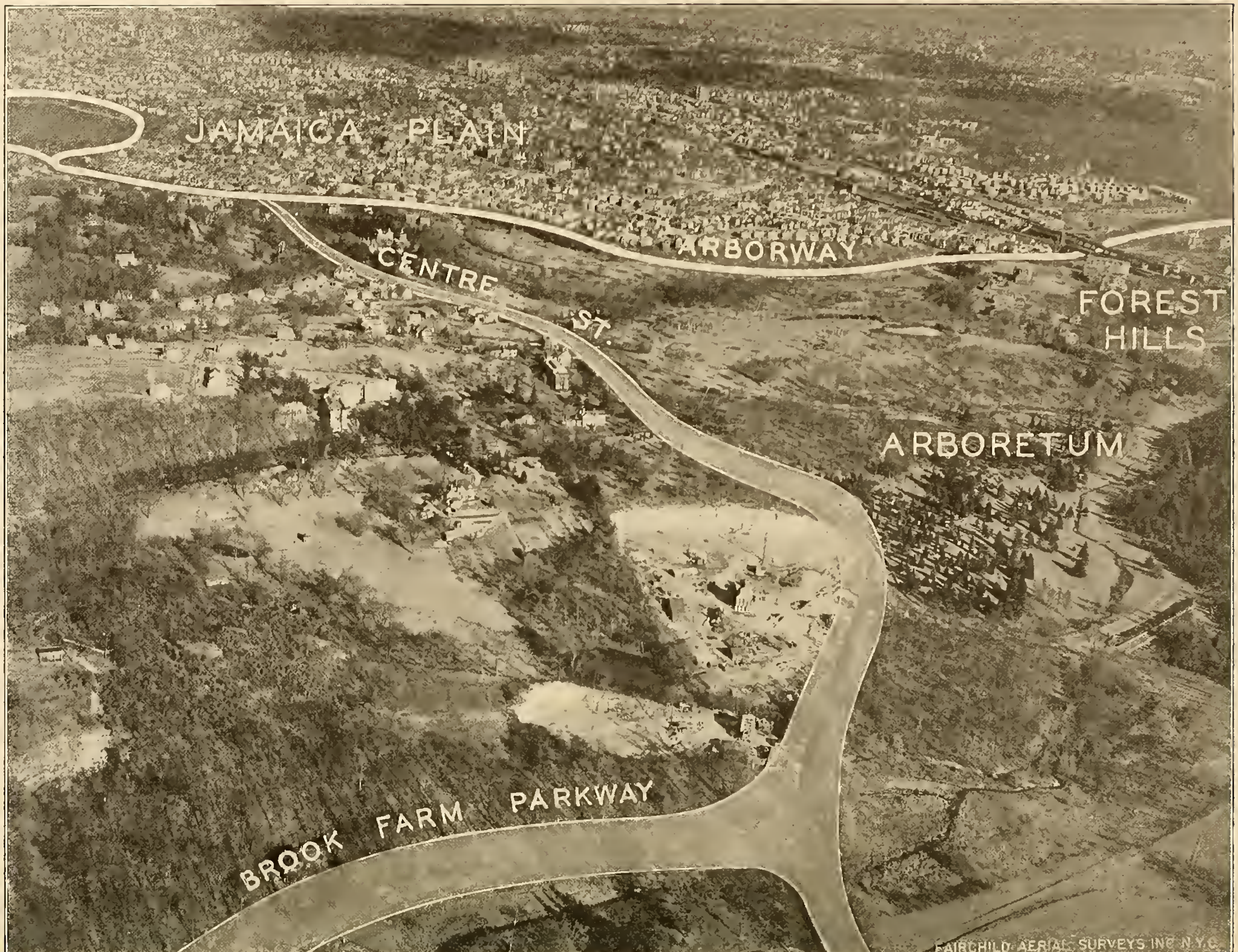


Figure 80.—Centre Street Widening and Connection with Brook Farm Parkway.

WEST ROXBURY

PROJECT 64. PERKINS STREET BUILDING LINE

Perkins Street, near the former boundary line between West Roxbury and Roxbury, runs from the Brookline town line to Centre Street and is well located to serve a considerable volume of through traffic. From the Jamaicaway to Centre Street, a distance of 1,770 feet, Perkins Street is 40 feet wide. Building lines should be established to facilitate an eventual widening to 80 feet, on the northerly side from Jamaicaway to South Huntington Avenue and on the southerly side for the remaining block to Centre Street, together with a small triangular strip on the north side and the rounding of the northeast corner at South Huntington Avenue and Perkins Street.

Eventually an overpass should be constructed carrying Perkins Street over Jamaicaway.

The establishment of the proposed building line has been included in the first construction period.

PROJECT 65. CENTRE STREET WIDENING

Federal Route No. 1, Maine to Florida, leaves the city by the Arborway and Centre Street, West Roxbury. Between the Arborway and South Street Centre Street is but 50 to 60 feet in width. Beyond South Street Centre Street has a width of 80 feet. It should be widened to a minimum of 80 feet between South Street and the proposed Brook Farm Parkway. (See Figs. 79, 80.)

It is proposed that the northerly portion of Centre Street shall form a connection between the Arborway and the proposed Brook Farm Parkway (project 69). As a suitable parkway connection this portion of Centre Street should have a width of 140 feet. A traffic circle should be constructed at the junction of the widened Centre Street with the Arborway. The 1929 Legislature authorized the city to widen Centre Street from a point near the Arborway to a point near Weld Street to a width of not less than 100 feet, and from Weld Street to South Street to a width of not less than 80 feet. The length of this project is 10,400 feet. It has been included in the first construction period.

PROJECT 66. CENTRE STREET AND WEST ROXBURY PARKWAY GRADE SEPARATION

The crossing of Centre Street with the West Roxbury Parkway is a heavy traffic intersection. The road grades can be separated at comparatively small expense. The central roadway of the Parkway should be carried over Centre Street. No property taking will be necessary.

It has been included in the third construction period. It should be constructed by the Metropolitan District Commission.

PROJECT 67. ARBORWAY, FOREST HILLS, UNDERPASS

Most of the congestion at the intersection of the Arborway with Washington Street is caused by the heavy through traffic of the Arborway meeting the Washington Street traffic, including street cars, and the large percentage of vehicles making a left-hand turn from Washington Street west into the Arborway. The situation at Washington Street is aggravated by the nearby intersection of South Street and the Arborway. Moreover, traffic over South Street will be materially increased if Saint Ann Street is extended to Roslindale Square as authorized by chapter 248 of the Acts of 1929.

To relieve congestion at these two intersections, it is proposed to construct an underpass 40 feet in width to carry the through travel of the central roadway of the Arborway beneath both South Street and Washington Street. The westerly end of the underpass would start about 600 feet west of South Street at a point in the present roadway opposite the entrance to the Arboretum, as shown on the profile on the accompanying plan. The underpass would descend on a 6 per cent grade to South Street, pass under South Street, descend on a $2\frac{1}{2}$ per cent grade to Washington Street, pass under Washington Street and rise on a 5 per cent grade to the present central roadway at a point about 360 feet east of Washington Street. (See Figs. 81, 82.)

To adjust grades to the best advantage it is proposed to raise Washington Street a maximum

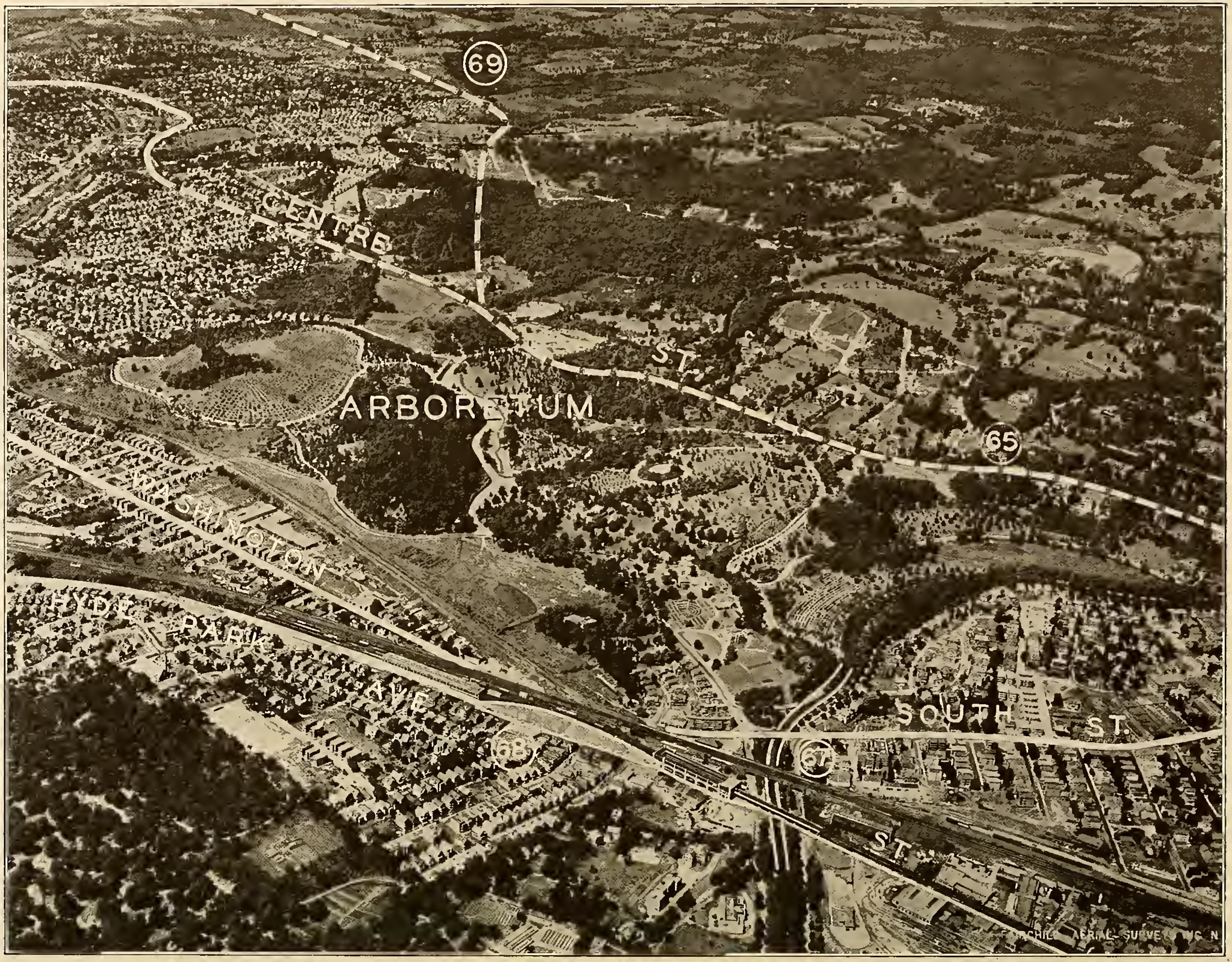


Figure 81.—Arborway Underpass (Project 67) at Forest Hills.

of about 4 feet and South Street a maximum of about 5 feet as they cross the Arborway. There is only one sewer that is involved and it seems that this could be replaced by a better layout at little expense. The large Stony Brook conduit is low enough to be safely crossed.

The estimated cost of the underpass is $350,000. Based on a time saving of one-half minute for each vehicle entering the intersections at Washington Street and South Street, and valuing this time saving at 2 cents a minute, it is estimated that the aggregate annual economic saving due to the construction of the underpass will be $107,000. It has been included in the second construction period.

PROJECT 68. HYDE PARK AVENUE AND WASHINGTON STREET JUNCTION, FOREST HILLS

Traffic is now seriously congested and delayed by the constructions at the beginning of both the main routes radiating southward at Forest Hills, Washington Street and Hyde Park Avenue. This should be remedied by acquiring the entire block bounded by these two highways and by Walk Hill Street, bringing the two car lines together in a central reservation and widening and repaving the two roadways for one-way traffic on each. The more westerly of these two roadways, however, can best be constructed east of the elevated structure instead of under it as at

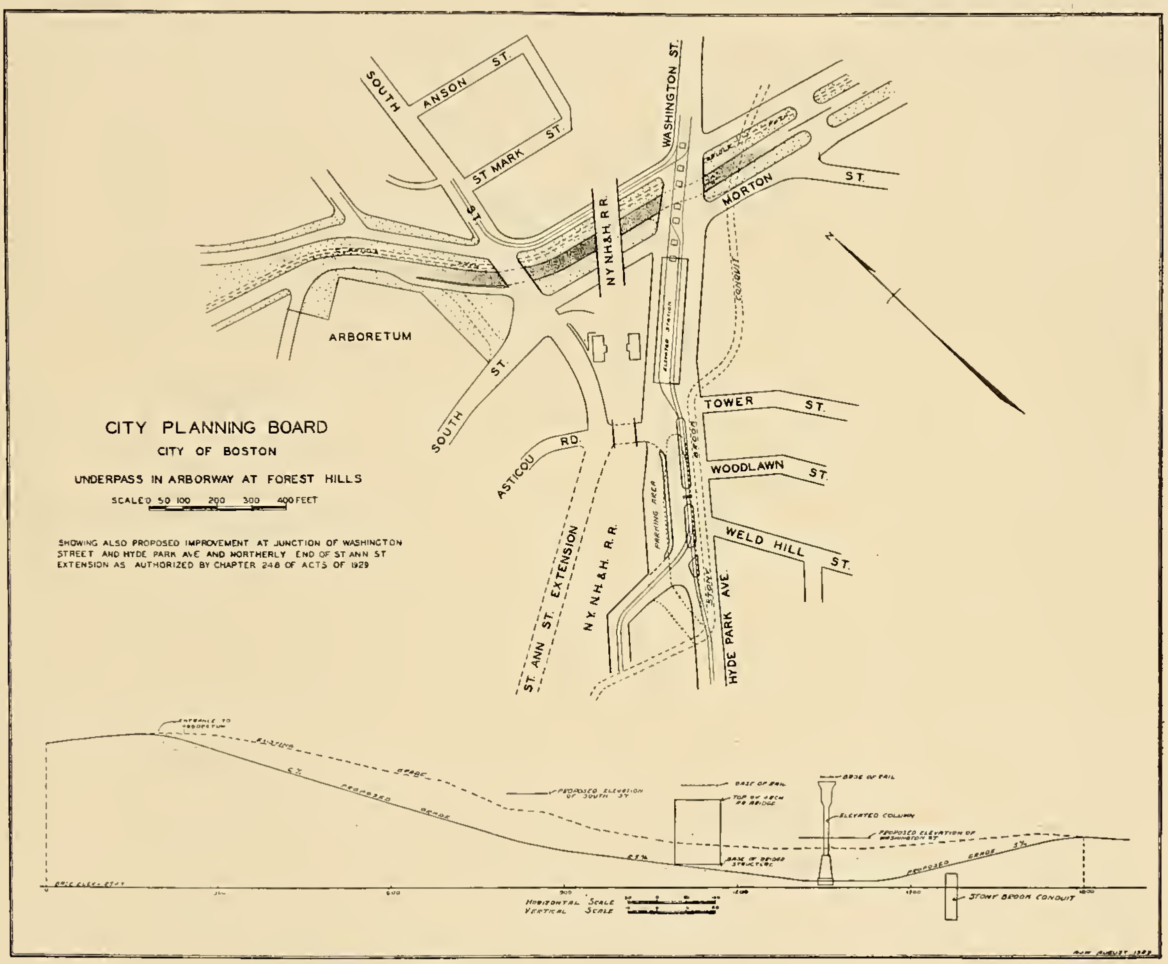


Figure 82.—Underpass in Arborway at Forest Hills.

Under the plan the 40-foot roadway of the Arborway will be depressed and carried under Washington and South Streets. The present grade of Washington and South Streets will be raised to shorten the approach cuts and to avoid interference with the Stony Brook Conduit.

present. It is recommended that this space under the elevated structure be used as parking space, for which a fee might be charged. It would be a convenience to many who would like to leave their cars while making the trip downtown by elevated train. (See Fig. 83.)

The estimated cost for this improvement is $240,000. It has been included in the third construction period.

PROJECT 69. BROOK FARM PARKWAY

The proposed Brook Farm Parkway is planned to extend from Centre Street at a point about 1,200 feet north of Weld Street to the Charles River near the Needham-Dedham line, a distance of 16,500 feet. (See Fig. 84.)

Between the major artery following Centre Street and Spring Street out of the city to the southwest and the extension of Huntington Avenue via Boylston Street, Brookline, through Newton on the west, is a large area in West Roxbury, Brookline and Newton now gradually developing for residential purposes but poorly supplied with routes leading into the city. The southern portion of this region lies in the extreme west part of West Roxbury and may now, while the land is still largely undeveloped, be served by a radial parkway of ample width leading from Centre Street and the Arborway to the Charles River near the Needham-Dedham line. Here a future bridge will give access to parts of both of these towns and the country beyond to the west and to the south.

Between Centre Street and the West Roxbury Parkway the proposed parkway would extend through park lands owned by the City of Boston and originally acquired for a continuation of the West Roxbury Parkway. Between the present West Roxbury Parkway and the Charles River the proposed Brook Farm Parkway would be approximately 13,000 feet in length. It should be laid out with extra width wherever topography favors to give space for suitable planting, and a park of considerable size should be created at the Charles River. Grades should be separated where the proposed parkway leaves Centre Street and at its crossings with the West Roxbury Parkway, La Grange Street and Baker Street.

This project has been included in the third construction period. It should be constructed by the Metropolitan District Commission.

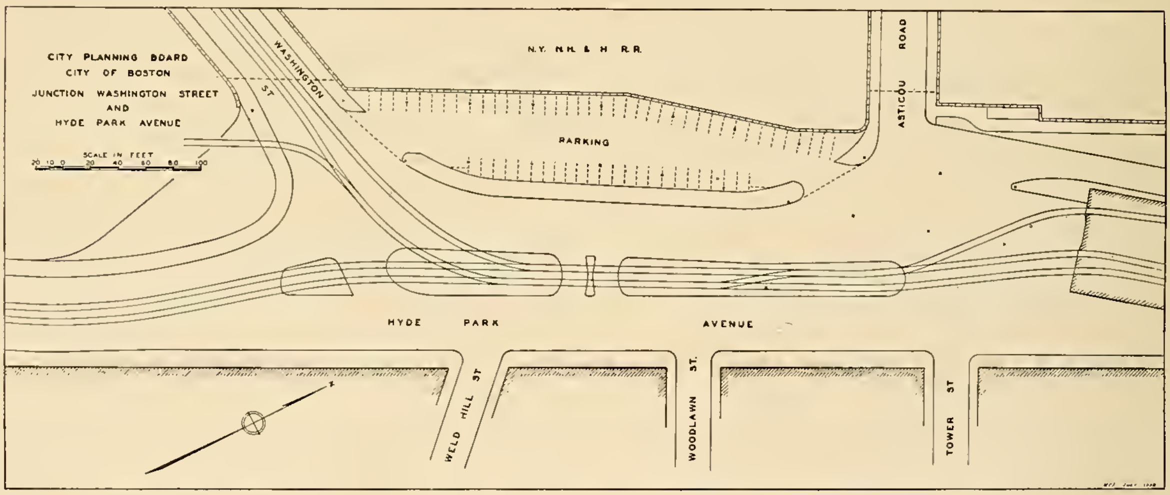


FIGURE 83.—IMPROVEMENT AT JUNCTION OF WASHINGTON STREET AND HYDE PARK AVENUE.

Under the plan the block bounded by Hyde Park Avenue, Washington Street and Walk Hill Street would be taken for street purposes and the two streets brought together into a wide street with the car tracks in a central reservation. It is suggested that the space under the elevated railway be used as a parking space in connection with the rapid transit station.

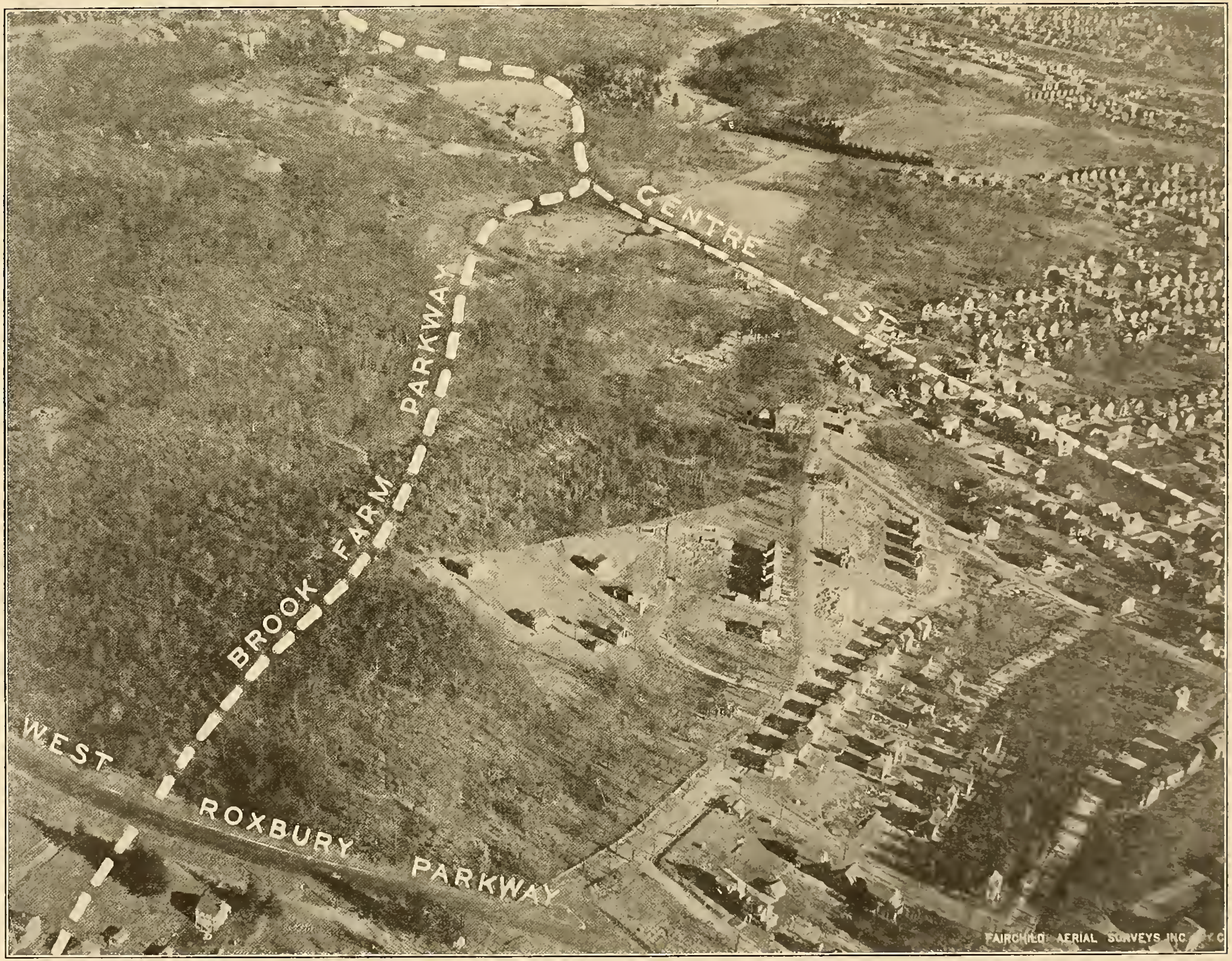


Figure 84.—Brook Farm Parkway (Project 69) from Centre Street to West Roxbury Parkway.

PROJECT 70. BAKER, CENTRE AND GROVE STREETS BUILDING LINE

As the outer portion of the city in West Roxbury and neighboring districts develop crosstown travel will increase and require routes of adequate width. One of these, already carrying considerable traffic by-passing the more congested portions of the city, leads from Hyde Park and East Dedham via Grove Street, a short section of Centre Street, and Baker Street to Newton a distance within the city limits of 15,600 feet. The existing streets are 40 feet wide, except that Grove Street between Washington Street and Centre Street has recently been widened to 60 feet. An ultimate width of 80 feet is desirable for the entire route and may readily be assured by establishing building lines now on each side for the whole length. It has been included in the first construction period.

HYDE PARK

PROJECT 72. WEST STREET WIDENING AND EXTENSION

For vehicles passing between Hyde Park and the central portion of West Roxbury the only present routes are circuitous and very steep in parts. The Clarendon Hills Parkway is proposed to extend from the West Roxbury Parkway at Washington Street southeast by way of Rockland Street, and then veers east towards Dorchester. From the present end of Rockland Street a new street 70 feet wide continuing in the same direction may readily be opened through unplotted country for 1,200 feet to Poplar Street. Poplar Street and its extension in the Hyde Park district, known as West Street, which at present have widths varying from 30 to 50 feet, should be widened to 70 feet through to Hyde Park Avenue, the widening being on the west side as far as Lodge Hill Road, on both sides for the next block to Austin Street, and on the east side for the rest of the distance. The total length of the project is 5,500 feet.

It has been included in the fourth construction period.

PROJECT 73. SPRAGUE STREET WIDENING

A growing section partly in the Hyde Park District of Boston and partly in the adjoining portion of Dedham needs better street access than afforded by the present Sprague Street, which is but 35 feet wide. The railroad bridge at the beginning of this street is 50 feet wide. The buildings on Sprague Street are set well back so that it may easily be widened to not less than 80 feet to the Dedham line, a distance of 1,400 feet. It has been included in the fourth construction period.

A new road should be constructed from Sprague Street, near the Boston–Dedham line, to East Street near the Dedham–Westwood line. This will permit Norwood traffic to connect with the proposed Neponset River Parkway near Readville station. This new road would lie entirely outside the limits of the City of Boston.

PROJECT 74. STONY BROOK RESERVATION AND NEPONSET RIVER PARKWAY CONNECTION

In 1898 the Metropolitan Park Commission recognized the need of connecting the road extending southerly from the south end of the West Roxbury Parkway through Stony Brook Reservation with the highways in Milton and future parkways along the Neponset River to the Blue Hills. At that time land was acquired by the Commission sufficient for a broad, single roadway from River Street at Mother Brook ascending by a ramp and crossing by a viaduct over the various railroad tracks of the Providence and Midland Divisions of the New York, New Haven & Hartford Railroad, as well as over Hyde Park Avenue, to the Neponset River just beyond.

One block of this (to Readville Street) has since been constructed, and a temporary surface roadway constructed in the next block, affording a somewhat inadequate route for the through traffic via Regent Street and East Milton Street to Paul's Bridge. Neither of these streets are suitable as a parkway connection. Moreover the present route involves several dangerous

right-angle turns as it crosses first over one set of railroad tracks and then under the next.

The construction of the viaduct as originally planned will effectively solve this tangle and replace the one ugly portion of this parkway route with a broad, dignified and direct avenue. This viaduct will not only connect up the metropolitan parks and parkways, including the new Hammond Pond Parkway, but will also effectively serve through traffic along Milton Street from Dedham and the west or from Newton and the north via Baker and Grove Streets destined for Quincy, Dorchester and points beyond by way of the proposed Neponset River Parkway, or for Milton and the southeast by the new Blue Hill River Road, and vice versa. The viaduct with its approaches will be about 1,700 feet in length. It has been included in the third construction period. It should be constructed by the Metropolitan District Commission.

TABLE XXII.— PROJECTS

Project Number	Name	Length	Present Width	Proposed Width	Construction Period
1.	East Boston Tunnel	6,500	—	—	1
2.	Central Artery	7,800	—	—	1
	General section	—	—	100	
	Ramp section	—	—	120	
3.	Blue Hills Radial	17,500	—	—	2
	Albany Street:				
	Kneeland Street to Broadway	—	52	120	
	Broadway to Dover Street	—	80	120	
	Dover Street to East Concord Street	—	80	140	
	East Concord Street to Washington Street	—	—	140	
4.	North Shore Radial	10,800	—	—	1
	Bremen Street:				
	Porter Street to Bennington Street	—	40	120	
	Bennington Street to Curtis Street	—	40		
	Curtis Street to Revere line	—	—	120	
5.	Roxbury Crosstown	22,600	—	—	2
	Old Colony Parkway to Sydney Street	—	—	140	
	Sydney Street to Dorchester Avenue	—	—	120	
	Dorchester Avenue to Commonwealth Avenue	—	—	140	
	Commonwealth Avenue to Charles River Parkway	—	—	120	
	Length in Boston	20,300			
	Length in Brookline	2,300			
6.	Charles River Parkway	12,400	—	—	3
7.	North Beacon Street (Brighton)	6,600	60	140	3
8.	Canterbury and Clarendon Hills Parkways	27,800	—	*140	3
	Canterbury Parkway	21,300			
	Clarendon Hills Parkway	6,500			
9.	Neponset River Parkway	30,400	—	*120	3
	Length in Boston	28,000			
	Length in Milton	2,400			
10.	B & A Highway	11,700	—	40	4
12.	Beverly Street widening	800	50	80	4
15.	Washington Street widening	1,000	60	100	2
16.	Chardon Street widening	740	40	80	2
17.	Staniford and Causeway Streets widening	1,220	—	—	4
	Staniford Street	920			
	Cambridge Street to Green Street	—	28–33	112	
	Green Street to Causeway Street	—	55–59	116	
	Causeway Street	300	60	94	

TABLE XXII.— PROJECTS.— *Concluded*

Project Number	Name	Length	Present Width	Proposed Width	Construction Period
34.	Nonantum Road extension	4,600	—	—	1
35.	Soldiers' Field Road and Fresh Pond Parkway connecting bridge and approaches	†1,200	—	—	3
36.	North Harvard Street relocation and connection to parkway via Stadium Road	5,600	—	80	3
	Cambridge Street to Parker Street	400	30		
	Parker Street to North Harvard Street at Smith Street	2,000	—		
	North Harvard Street to Charles River	1,800	60		
	Stadium Road	1,400	40		
37.	Western Avenue building line	7,700	—	90	1
	Charles River, west to Spur Street	—	66		
	Spur Street, west to Charles River	—	60		
38.	Saint Paul Street connection	1,900	—	—	3
39.	Commonwealth Avenue, Brighton, grade separations	—	—	—	3
40.	Rutherford Avenue widening	5,600	—	—	2
	City Square to Union Street	—	60	86	
	Union Street to Cambridge Street	—	—	*100	
	Union Street to Chapman Street	—	60		
	Chapman Street to 200 feet north of Miller Street	—	50		
	200 feet north of Miller Street to Cambridge Street	—	60		
41.	City Square by-pass	2,000	—	80–86	2
42.	Prison Point Bridge approach	—	—	—	2
43.	Chelsea Street Bridge reconstruction	1,500	—	—	3
44.	Border Street widening and bridge to Chelsea	4,700	50	90	3
45.	Boardman Street widening and extension	4,650	50	90	4
46.	Curtis Street widening and extension	2,150	50	80	4
47.	Cleveland Street widening and extension	4,600	40	120	4
48.	Maverick Street extension on Commonwealth lands	3,800	50	100	4
49.	Airport-Army Base Ferry	4,900	—	—	4
50.	Porter Street widening	3,700	50	100	1
51.	South Ferry relocated to South Boston	5,400	—	—	3

18.	Commercial Street widening	800	60	80	4
19.	Charles River Dam traffic circle and Charles Street widening	—	—	—	1
	Charles Street widening	1,900	60	140	
20.	Longfellow Bridge traffic circle and underpass	—	—	—	1
21.	Berkeley and Dover Streets widening	5,100			
	Berkeley Street	1,600	—	80	3
	Back Street to Beacon Street	—	30		
	Beacon Street to Boylston Street	—	60		
	Dover Street widening	2,100	—	120	4
	Tremont Street to Harrison Avenue	—	50		
	Harrison Avenue to Albany Street	—	60		
	Dover Street building line	1,400	60	120	1
22.	Arlington Street widening	800	40	80	3
23.	Dewey Square improvement	—	—	—	2
24.	Castle, Motte and Way Streets	2,000			
	Arlington Square to Shawmut Avenue	750	50	120	2
	Shawmut Avenue to Washington Street	350	50	50	2
	Washington Street to Harrison Avenue	350	28–33	60	2
	Harrison Avenue to Blue Hills Radial	550	20	120	2
	Tunnel, Shawmut Avenue to Harrison Avenue	800	—	40	4
25.	Dartmouth and Dedham Streets widening	4,800			
	Dartmouth Street	—	60	80	
	Dedham Street	—	50	80	
	Building line	—	—	—	1
	Construction	—	—	—	4
26.	Massachusetts Avenue and Commonwealth Avenue underpass	1,000	—	40	1
28.	Governor Square	1,200	—	40	2
29.	Charlesgate Viaduct	1,500	—	—	3
30.	Muddy River Parkway, western side	†3,200			
	Audubon Road to Park Drive	—	—	—	2
	South of Chestnut Street	—	—	—	4
31.	Riverway and Huntington Avenue grade separation	600	—	—	3
32.	Cleveland Circle and Jamaica Pond Crosstown (connection via Eliot and Lee Streets, Brookline)	†2,400	—	—	4
33.	Market Street and Chestnut Hill Avenue	9,300			
	Building line on Chestnut Hill Avenue	3,100	—	—	1
	Union Street to South Street	—	66	90	
	South Street to Commonwealth Avenue	—	60	90	
	Construction	6,200	—	—	3
	Market Street	—	66	100	
	Chestnut Hill Avenue, from Washington Street to Union Street	—	60	90	

* Minimum width. † Length in Boston.

52.	Neptune Road extension	10,600	—	—	1
54.	Northern Avenue extension	300	—	100	4
55.	Harbor Street extension and taking by City of Boston	1,400	—	75	4
56.	Dorchester Street extension across Reserved Channel	2,400	—	60	4
57.	Summer and L Streets widening	5,400	—	100	4
	Summer Street Bridge	—	60		
	Bridge to East First Street	—	70		
	East First Street to Columbia Road	—	50		
58.	D Street widening	3,700	50	80	4
59.	Dorchester Avenue and Old Colony Avenue widening	5,600	—	—	2
	Old Colony Avenue:				
	Preble Street to Dorchester Street	—	80	140	
	Dorchester Street to Dorchester Avenue	—	80	120	
	Dorchester Avenue:				
	Old Colony Avenue to Broadway	—	60	120	
	Broadway to West First Street	—	60	100	
60.	Preble Street widening	1,250	25	80	4
61.	Southampton Street building line	4,150	70	80	1
62.	Victory Parkway	†2,800	—	140	4
64.	Perkins Street building line	1,770	40	80	1
65.	Centre Street widening	10,400	—	—	1
	Arborway to Brook Farm Parkway	—	60	140	
	Brook Farm Parkway to South Street	—	60	80	
66.	Centre Street and West Roxbury Parkway grade separation	600	—	20	3
67.	Arborway, Forest Hills, underpass	1,500	—	40	2
68.	Hyde Park Avenue and Washington Street junction, Forest Hills	700	—	—	3
69.	Brook Farm Parkway	16,500	—	*140	3
70.	Baker, Centre and Grove Streets building line	15,600	—	80	1
	Baker Street	—	40		
	Centre Street	—	50		
	Grove Street:				
	Centre Street to Washington Street	—	60		
	Washington Street to Dedham line	—	40		
72.	West Street widening and extension	5,500	40	70	4
73.	Sprague Street widening	1,400	35	80	4
74.	Stony Brook Reservation and Neponset River Parkway connection	1,700	—	—	3

* Minimum width. † Length in Boston.

VI. CONSTRUCTION PROGRAM

A construction program has been drawn up, based on the relative urgency of the various projects as determined by estimated traffic volume, relief to traffic congestion, economic saving to users, increased safety and relation to the traffic system as a whole.

Four construction periods are proposed: The first extending over a period of four to six years; the second, a period of four to six years; the third, a period of two to four years; and the fourth, a period of five to nine years. The entire program will therefore extend over a period of from fifteen to twenty-five years.

I. FIRST CONSTRUCTION PERIOD

A construction program seems logically to start with the East Boston Tunnel. The Tunnel will correct a serious defect in the circulation system. It will mean a radical change in the present distribution and flow of traffic. The value of the Tunnel, however, must necessarily be limited by the adequacy of its approaches.

These approaches will be hopelessly inadequate without substantial changes and improvements. Assuming that the Tunnel is a first essential in an improvement program, it is clear that the building of adequate approaches to the Tunnel should go forward concurrently with the Tunnel itself.

The proposed North Shore Radial has been designed to serve as the main approach to the Tunnel from the East Boston side and the proposed Central Artery is believed to supply the logical approach from the Central Boston side. Supplementing the North Shore Radial the widening of Porter Street is proposed to connect the East Boston portal with the Airport and with central Chelsea.

Assuming the concurrent construction of the North Shore Radial and the Central Artery, it is estimated that tunnel tolls averaging 28 cents per vehicle will prove ample to pay operating costs and interest and amortization on the entire cost of the Tunnel.

The estimated cost of the Central Artery, not including a portion of the cost near the Tunnel portal which has been included in the Tunnel approach cost is $28,000,000. The estimated cost of the portion of Porter Street widening not included as part of cost of tunnel approach is $557,000. This makes a total cost for projects within the first construction period, exclusive of the cost of the Tunnel and the North Shore Radial, of $28,557,000.

In view of the burden that will be placed on the City by the construction of the Tunnel, the Central Artery and Porter Street, it is believed that the North Shore Radial should be constructed as a state highway and its entire cost borne by the Commonwealth.

In addition to carrying through the above construction program, Boston should create a fund to enable it to purchase in advance of imminent building operations land that will be needed for projects included in the second, third or fourth construction periods. Probably $500,000 a year should be made available for this purpose.

Moreover, during the first construction period building lines to facilitate future widening should be established on Dover Street (Project 21), Dartmouth and Dedham Streets (Project 25), Chestnut Hill Avenue (Project 33), Western Avenue (Project 37), Southampton Street (Project 61), Perkins Street (Project 64), and Baker and Grove Streets (Project 70).

Other projects included in the first construction period for which preliminary authorization has already been obtained are:

Traffic circle and underpass at Charles River Dam and Charles Street widening (Project 19).

Traffic circle and underpass at Longfellow Bridge (Project 29).

Commonwealth and Massachusetts Avenues underpass (Project 26).

Nonantum Road extension (Project 34).

Neptune Road extension (Project 52).

Centre Street widening (Project 65).

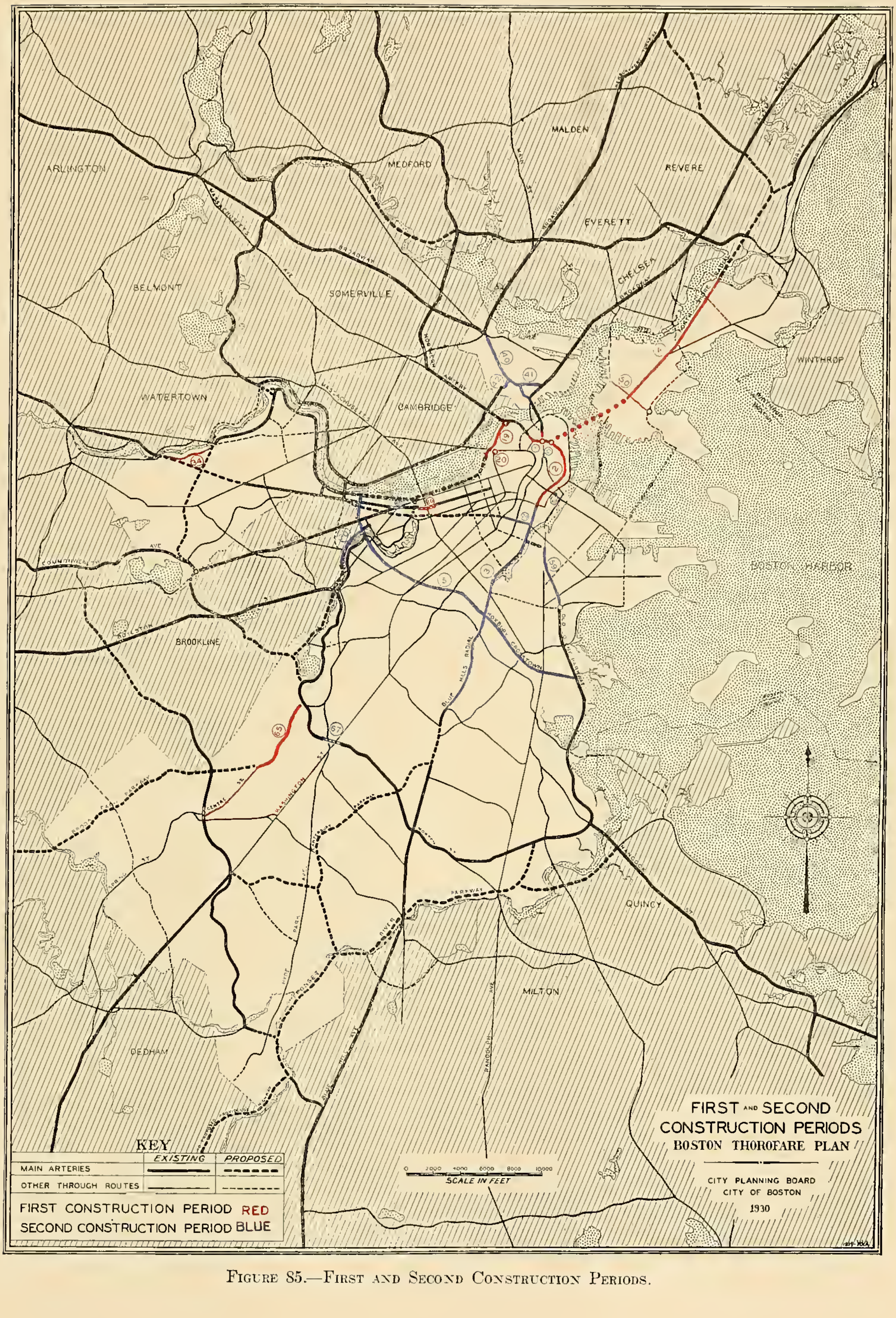


Figure 85.—First and Second Construction Periods.

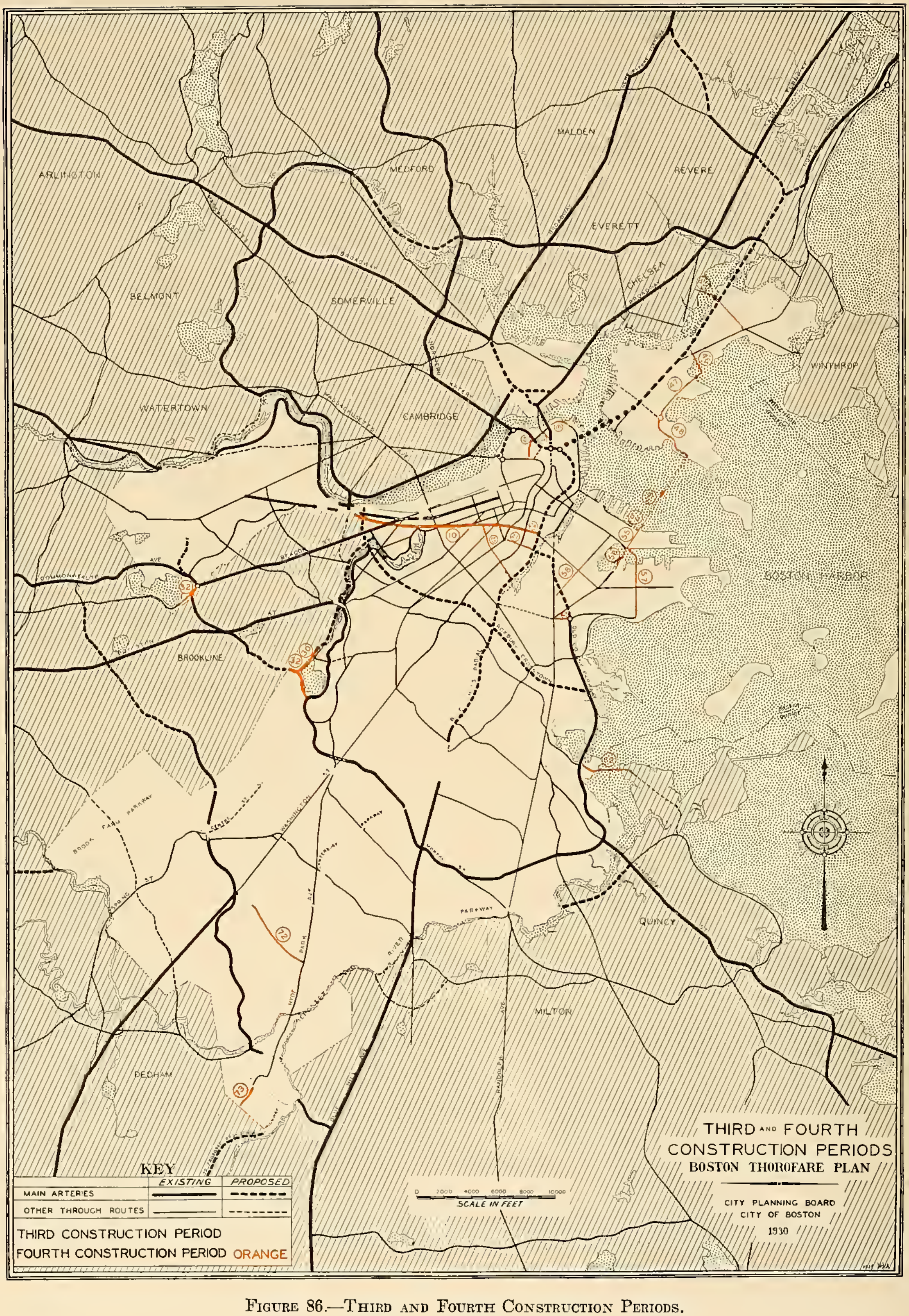


FIGURE 86.—THIRD AND FOURTH CONSTRUCTION PERIODS.

2. SECOND CONSTRUCTION PERIOD

The construction of the Central Artery and the East Boston Tunnel will mean a radical readjustment in the traffic flow to, from and within Central Boston. This will require certain new connections within the Central area and a substantially new outlet to the south, the proposed Blue Hills Radial. This group of closely related improvements, with their estimated costs, are as follows:

Blue Hills Radial (Project 3)	$9,500,000
Chardon Street widening (Project 16) . .	800,000
Washington Street widening (Adams Square to Haymarket Square) (Project 15) . .	2,235,000
Dorchester Avenue and Old Colony Avenue (Project 59)	1,420,000
Castle, Motte and Way Streets (Project 24).	1,025,000

Other projects included in this period are:

Arborway, Forest Hills underpass (Project 67)	$350,000
Governor Square grade separation (Project 28)	400,000
Rutherford Avenue widening (Project 40) .	1,950,000
City Square by-pass, Charlestown (Project 41)	840,000
Prison Point Bridge approach (Project 42) .	165,000
Dewey Square improvement (Project 23) .	6,000

This makes a total cost for projects included in the second construction period of $18,691,000.

The Blue Hills Radial, the widening of Rutherford Avenue, the City Square By-Pass and the widening of Old Colony and Dorchester Avenues are exceedingly important parts of the State highway system. Another great improvement that should be carried out in this period, the Roxbury Crosstown, is peculiarly metropolitan in character. It extends from the Old Colony Parkway, which is under the control of the Metropolitan District Commission, to connections with Beacon Street, Commonwealth Avenue, Cottage Farm Bridge and Charles River Road, now under construction by the Metropolitan District Commission. For 2,300 feet of its length the proposed route is entirely within the Town of Brookline. In view of the burden that will be assumed by the City for other projects it is believed that the Roxbury Crosstown should be constructed as a State highway and its entire cost borne by the Commonwealth.

3. THIRD CONSTRUCTION PERIOD

The first and second construction periods are designed to include a group of closely related projects in and around Boston proper, with important trunk line radials to the northeast, south and west. The third construction period is designed to extend and complete the radial system and to develop the outer circumferential system of main routes. A feature of this period will be the development of five attractive parkway routes.

These new parkways will be: The Canterbury Parkway extending from the southerly terminus of the Blue Hills Radial at Seaver Street to the Neponset River; the Neponset River Parkway extending from Quincy Shore Drive near the Neponset Bridge to the present short section of parkway of that name near Paul's Bridge, Milton; the Clarendon Hills Parkway extending from the Canterbury Parkway north of Clarendon Hills station to Washington Street at its junction with the West Roxbury Parkway; the Brook Farm Parkway extending from Center Street to Dedham and Needham; and the Charles River Parkway extending from the Longfellow Bridge to the Cottage Farm Bridge. They should be constructed and financed as are other metropolitan parkways.

The Neponset River Parkway and the Clarendon Hills Parkway will constitute important parts of a circumferential system of traffic routes. This will also be true of the proposed widening of Chestnut Hill Avenue and Market Street in Brighton. Less important links in the circumferential system are the widening and relocation of North Harvard Street and the widening of Arlington Street.

Further links in a radial system allotted to this third construction period are the widening of North Beacon Street, the separation of grades at the Riverway and Huntington Avenue; and the building of the Charlesgate viaduct over Commonwealth Avenue and Beacon Street.

The following is a list of projects recommended for the third construction period:

Projects.	Estimated Cost.
Charles River Parkway (Project 6) . .	No estimate.
North Beacon Street, Brighton (Project 7).	$1,040,000
Canterbury Parkway (Project 8) . .	2,370,000

TABLE XXIII.— FIRST AND SECOND CONSTRUCTION PERIODS

Project	Property Damage	Surface Cost	Permanent Structures	Total Cost
No. 2. Central Artery	$22,400,000	$600,000	$5,000,000	$28,000,000
No. 50. Porter Street	262,000	135,000	160,000	557,000
Total First Period	$22,662,000	$735,000	$5,160,000	$28,557,000
No. 3. Blue Hills Radial	$5,500,000	$950,000	$3,050,000	$9,500,000
No. 15. Washington Street widening	2,035,000	50,000	150,000	2,235,000
No. 16. Chardon Street widening	753,000	47,000	....	800,000
No. 23. Dewey Square improvement	....	6,000	....	6,000
No. 24. Castle, Motte and Way Streets	914,000	111,000	....	1,025,000
No. 28. Governor Square grade separation	....	....	400,000	400,000
No. 40. Rutherford Avenue widening	1,400,000	550,000	....	1,950,000
No. 41. City Square by-pass	693,000	147,000	....	840,000
No. 42. Prison Point Bridge approach	129,000	36,000	....	165,000
No. 59. Dorchester and Old Colony Avenues	610,000	335,000	475,000	1,420,000
No. 67. Arborway, Forest Hills, underpass	....	....	350,000	350,000
Total Second Period	$12,034,000	$2,232,000	$4,425,000	$18,691,000
Total Both Periods	$34,696,000	$2,967,000	$9,585,000	$47,248,000

TABLE XXIV — FINANCIAL PLAN FOR FIRST AND SECOND CONSTRUCTION PERIODS

Year	(1) Debt Service Present Major Highway Bonds	(2) Difference Available for New Debt Service	(3) Add for Assessed Valuation Increase *	(4) Add for Auto Excise †	(5) Total Available for New Debt Service	(6) New 50-year 4 Per Cent Bonds	(7) New Debt Service	(8) Cumulative Balance over Needs
1930	$2,500,240	....	$40,000	$500,000	$540,000	$5,000,000	$100,000	$440,000
1931	2,489,141	$11,099	80,000	595,000	686,000	5,000,000	398,000	728,000
1932	2,361,992	138,148	120,000	685,000	943,000	6,000,000	712,000	959,000
1933	2,373,119	227,021	160,000	770,000	1,157,000	6,000,000	1,061,000	1,055,000
1934	2,151,071	349,069	200,000	850,000	1,399,000	6,557,000	1,418,000	1,036,000
1935	1,979,535	520,605	240,000	925,000	1,685,000	4,000,000	1,740,000	981,000
1936	1,852,475	647,665	280,000	993,750	1,921,000	4,000,000	1,956,000	946,000
1937	1,681,478	818,662	320,000	1,056,250	2,195,000	4,000,000	2,168,000	973,000
1938	1,540,595	959,545	369,000	1,112,500	2,432,000	4,000,000	2,377,000	1,028,000
1939	1,472,222	1,027,918	400,000	1,162,500	2,590,000	2,691,000	2,551,000	1,067,000

* Estimated added revenue from increased valuations, assuming continuance of a tax levy for major highway debt service equal to that required to raise $2,500,240 in 1930.

† Estimated revenue from auto excise in excess of estimated revenue from personal property tax on automobiles collected in 1928.

Figure 87.—Outline Map of Boston Thorofare Plan.

Table XXI

Project	
No. 2. Central Artery..................	
No. 50. Porter Street..................	
Total First Period..................	
No. 3. Blue Hills Radial..............	
No. 15. Washington Street widening. . .	
No. 16. Chardon Street widening.......	
No. 23. Dewey Square improvement...	
No. 24. Castle, Motte and Way Streets.	
No. 28. Governor Square grade separati	
No. 40. Rutherford Avenue widening...	
No. 41. City Square by-pass...........	
No. 42. Prison Point Bridge approach..	
No. 59. Dorchester and Old Colony Ave	
No. 67. Arborway, Forest Hills, underp	
Total Second Period..................	
Total Both Periods..................	

Table XXIV — Financi

Year	(1) Debt Service Present Major Highway Bonds	(2) Difference Available for New Debt Service
1930..........	$2,500,240	.........*
1931..........	2,489,141	$11,09
1932..........	2,361,992	138,14
1933..........	2,373,119	227,02
1934..........	2,151,071	349,06
1935..........	1,979,535	520,60
1936..........	1,852,475	647,66
1937..........	1,681,478	818,66
1938..........	1,540,595	959,54
1939..........	1,472,222	1,027,91

* Estimated added revenue from increa
service equal to that required to rai

† Estimated revenue from auto excise in
in 1928.

Projects.	Estimated Cost.
Clarendon Hills Parkway (Project 8) .	$1,290,000
Neponset River Parkway (Project 9) .	3,250,000
Arlington Street widening (Project 22) .	460,000
Charlesgate viaduct (Project 29) . .	No estimate.
Riverway and Huntington Avenue grade separation (Project 31)	No estimate.
Market Street and Chestnut Hill Avenue (Project 33)	$825,000
Soldiers' Field Road and Fresh Pond Parkway connecting bridge and approaches (Project 35)	No estimate.
North Harvard Street relocation and connection to Parkway via Stadium Road (Project 36)	$370,000
Saint Paul Street connection (Project 38).	No estimate.
Commonwealth Avenue, Brighton, grade separations (Project 39)	No estimate.
Chelsea Street Bridge reconstruction (Project 43)	No estimate.
Border Street widening and bridge to Chelsea (Project 44)	No estimate.
South Ferry relocated to South Boston (Project 51)	$1,000,000
Center Street and West Roxbury Parkway grade separation (Project 66) . .	No estimate.
Improvement of Hyde Park Avenue and Washington Street junction (Project 68).	$240,000
Brook Farm Parkway (Project 69) . .	No estimate.
Stony Brook Reservation and Neponset River Parkway connection (Project 74).	No estimate.

4. FOURTH CONSTRUCTION PERIOD.

In the fourth construction period, which is assumed to extend over a period of from five to nine years, have been placed all the remaining unallotted projects included in the Thoroughfare Plan. Some of these projects are needed even at the present time and it is only a consideration of their relative urgency in connection with the financial capacity of the City that has led to their allotment to this fourth period of construction. If ways are discovered to provide for their earlier financing without postponing more urgent projects, that will of course be most fortunate and acceptable.

No estimates have been made of the cost of the projects included in the fourth period, as probable changes in property values and in construction methods and costs might render such present estimates of little value. The following is a complete list of these projects:

B. & A. Highway (Project 10).
Beverly Street widening (Project 12).
Staniford and Causeway Streets widening (Project 17).
Commercial Street widening (Project 18).
Berkeley and Dover Streets widening (Project 21).
Castle, Motte and Way Streets tunnel (Project 24).
Dartmouth and Dedham Streets widening (Project 25).
Muddy River Parkway, western side (Project 30).
Cleveland Circle and Jamaica Pond crosstown (connection via Eliot and Lee Streets, Brookline) (Project 32).
Boardman Street widening and extension (Project 45).
Curtis Street widening and extension (Project 46).
Cleveland Street widening and extension (Project 47).
Maverick Street extension on Commonwealth lands (Project 48).
Airport-Army Base Ferry (Project 49).
Northern Avenue extension (Project 54).
Harbor Street extension and taking by City of Boston (Project 55).
Dorchester Street extension across Reserved Channel (Project 56).
Summer and L Streets widening (Project 57).
D Street widening (Project 58).
Preble Street widening (Project 60).
Victory Parkway (Project 62).
West Street widening and extension (Project 72).
Sprague Street widening (Project 73).

VII. THE HISTORY OF BOSTON'S STREET SYSTEM

By ELISABETH M. HERLIHY, *Secretary City Planning Board*

I. Physical Growth and Topographic Changes.

The first official survey of the Town of Boston, ordered by the State in 1794, showed a total area of 783 acres, but the century and a half which preceded this survey had witnessed a remarkable rise and fall in acreage totals. Starting with an approximate area of 750 acres at the time of the settlement of Boston in 1630, the first ten years saw the original sites of Chelsea, Winthrop, Revere, Braintree, Quincy, Randolph, Holbrook, Brookline and East Boston granted to the smaller yet already recognized metropolis, until the Boston town meeting in 1639 was found exercising jurisdiction over fully 43,000 acres of land, or considerably more than it is even at the present day. The tide apparently turned soon after, however, East Boston only remaining permanently annexed, the other lands being disposed of by grant or by sale, so that in the closing years of the eighteenth century Boston's territory comprised very little more than its original holdings.

Again the tide turned, and the work of rehabilitation was begun. In fact, the nineteenth might be recorded as the greatest of centuries so far as the City of Boston is concerned for it was during this period that practically all of the great physical changes were accomplished. The annexation of South Boston took place in 1804, Roxbury in 1868, Dorchester in 1870, and Charlestown, Brighton and West Roxbury in 1874. Several important reclamation projects were also undertaken during this period, including the filling in of the coves and inlets and the reclamation of the Back Bay which increased the original area by more than 1,000 acres of made land. It was during the nineteenth century also that Boston shed its swaddling clothes and emerged in 1822 duly incorporated as the first city in the Commonwealth and the largest city in New England. The twentieth century saw its area again increased, in 1912, by the annexation of Hyde Park, and with the work of reclamation still going on, Boston at the present time is a city of 30,598 acres, or nearly forty times its original size.

This development has been by no means devoid of interest and at the same time not entirely devoid of design. In fact, Boston may be said to have had its inception in city planning principles however much these may have been later overturned by the historic cow. It is recorded that early in the 17th century the Massachusetts Company in England engaged Thomas Graves, a skilful engineer of Kent, to go to New England in their interests and *"lay out"* a town. Arriving first in Salem, he soon removed, in company with about one hundred others, to Charlestown, or Mishawum, "a great spring," as it was known to the Indians, arriving there on June 24 (or July 4 new style), 1629, which is said to be the only date for the foundation of Charlestown for which good authority can be adduced.

Mr. Graves proceeded without delay to "model and lay out the form of the town with streets about the hill," providing for each inhabitant a two-acre lot to plant upon. Their residence there was short-lived, however, sickness, grief, hunger, and particularly a lack of good water, soon prompting them to accept the invitation of William Blaxton (or Blackstone), the first white settler in Boston who several years earlier had taken up his residence on the other side of the Charles River at a place called by the Indians "Shawmut," said to be indicative, in their dialect, of the abundance and sweetness of its waters. Thither the little colony removed to share with their more fortunate neighbor his acres and his excellent spring on the west slope of Beacon Hill, thus effecting the actual settlement of Boston on September 17, 1630.

For our first topographic description of the ancient peninsula, we are dependent upon Anne Pollard, an impulsive young woman who was foremost to leap ashore from the first boat load of colonists as they passed over from Charlestown

and touched at the North End. Although but an old lady's recollection of the scenes of her youth, recorded after the lapse of almost a century, her description is nevertheless possessed of characteristic New England flavor. She described it as a place

"very uneven, abounding in small hollows and swamps, covered with blueberries and other bushes."

Later descriptions emphasize the location of the peninsula as flung boldly out from the mainland

"like a restraining arm to hold back the too eager rushing of the rivers Charles and Mystic to the sea. . . . With no more symmetry of form than a splash of molten lead dropped into the cooling waters,"

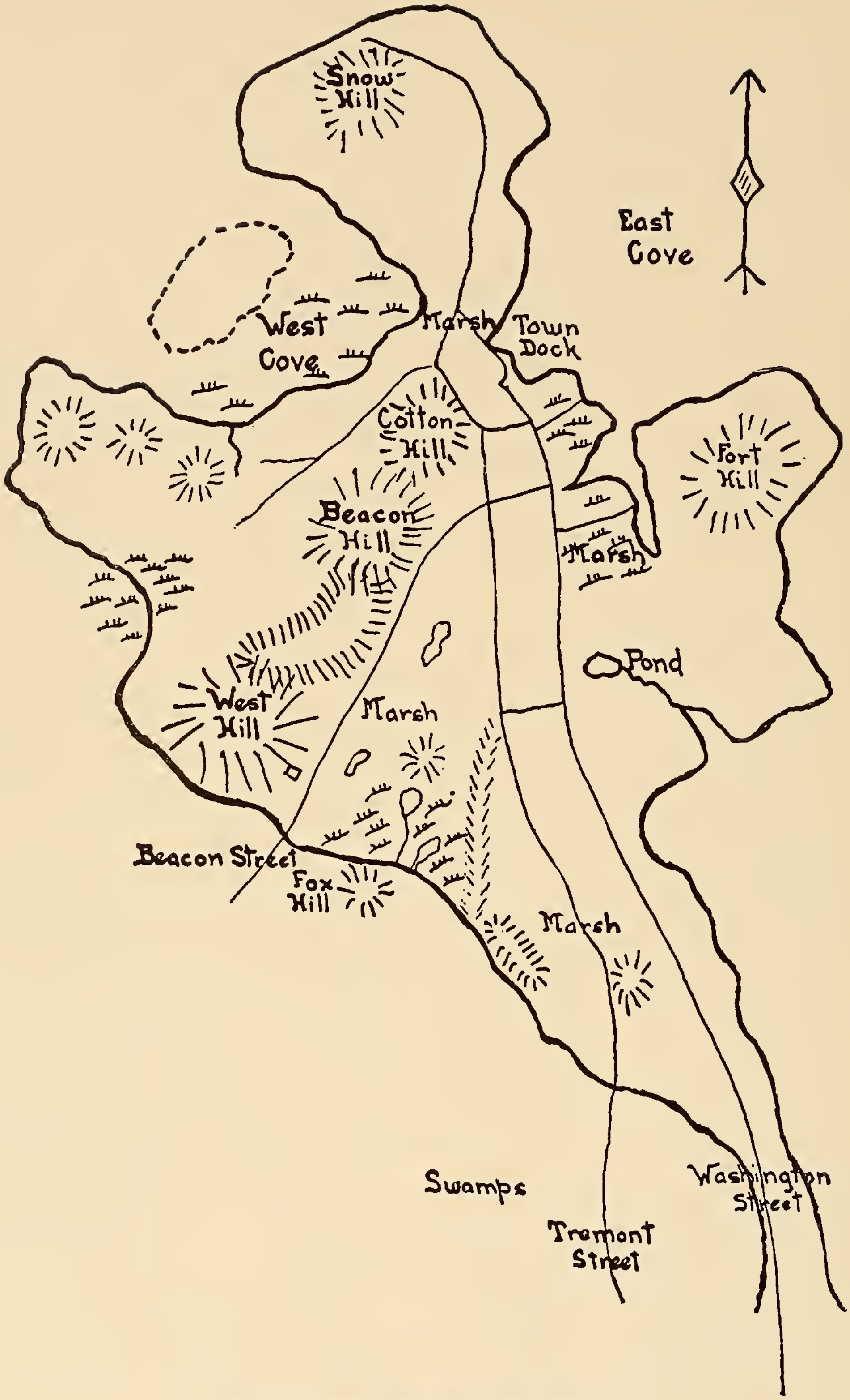
forming a natural barrier and commanding the entrance to the fertile country beyond.

Among the outstanding features of the new settlement were its hills which have ever continued to be a source of joy and in some respects, at least, of perplexity. Copp's Hill, known first as Windmill Hill and later as Snow Hill, rose precipitously from the water on the northeast to a height of 50 feet, sweeping away in a long gentle slope toward the south and west, leaving its summit almost level. The building of a fort in 1632 furnished the name for Fort Hill which had previously been designated as Corn Hill, being one of the early planting grounds of the colonists. This hill, of which the only trace remaining today is its name, rose to a height of 80 feet above the level of the sea and to the stranger sailing up the harbor was one of the most prominent features of the town. Perhaps most important of all, since they afforded to Boston its original name, Trimountaine, and as they are perpetuated on the city seal to the present day, were the "three little rising hills" comprised in the high ridge of land which extended through the center of the peninsula from the head of Hanover Street southwest to the River Charles. Cotton Hill on the east, afterwards changed to Pemberton, was credited with a height of eighty feet; Beacon Hill, originally known as Centry Hill, in the vicinity of Temple and Bowdoin Streets, 138 feet above the sea; and West Hill in the vicinity of Pinckney Street, called at different times Copley's Hill, Mt. Vernon, Mt. Whoredom, and other names less generally known. In addition, there was a small hill in the marshes at the bottom of the Common of which we find frequent mention in the early records under the name of Fox Hill.

Only second in topographic value to its hills were the coves of Boston. These deep inlets, worn by the sea whenever the yielding nature of the soil permitted, were, in 1630, fast changing the character of the place, washing to a thinner and thinner thread the frail hold of the peninsula upon the mainland. At this point man stepped in and the course of the sea was not only stayed but turned back upon itself, and with immense effect, until today Boston appears firmly welded to the mainland as part and parcel of the Continent.

Thus we have the original framework for our physical city and even for our Metropolitan region, since it must be remembered that the boundary lines of 300 years ago were much more expansive than they are at the present time. In proof of this we have only to recite that the Charlestown of that day included the whole or portions of Somerville, Cambridge, Woburn, Burlington, Wilmington, Stoneham, Winchester, Melrose, Everett, Malden, Wakefield, Medford and Arlington. The process of development or the evolution of the present city from its original chrysalis began almost immediately. The coves swallowed up the hills by the law of natural growth and necessity. Fort Hill, Fox Hill and West Hill have completely disappeared; Castle Island has ceased to be an Island and East Boston is pushing out into the sea, until today Boston is a man-made city to a greater degree than is generally realized with not a foot remaining of the shore line of the original peninsula. This process of expansion has been gradual and not unaccompanied by growing pains.

One of the most important reclamation projects, and one scarcely contemplated in the early days, is generally referred to as the filling in of the Back Bay. Prior to 1850, the population of the City of Boston and of the adjoining Town of Roxbury had grown to such extent that the



SHAWMUT, 1625. (Modern streets indicated.)

FIGURE 88.—THE HILLS OF BOSTON.

Reproduced from "The Real Founders of New England," by permission of the author, Charles Knowles Bolton (1929)

1-2—British Works at Boston Neck.
3—Gen. Ward's Division, Roxbury.
4—Gen. Putnam's Division, Cambridge.
5—Gen. Lee's Division, Somerville.
6—Dorchester Heights Redoubts.
7—Nook Hill.
8—British Fleet.
9-9—Where American troops would have landed if British attacked redoubts.

FIGURE 89.—BOSTON WITH ITS ENVIRONS, SHOWING THE FRAIL HOLD OF THE PENINSULA UPON THE MAINLAND.

(Reproduced from History of South Boston
by John J. Toomey and Edward P. B. Rankin (1901)

drainage from these communities into the tidal-flat basin created by the building of a tide mill dam on what is now the line of Beacon Street had created a nuisance. Shortly after 1850, the Commonwealth undertook the reclamation of these flats as a measure of sanitation. As the simplest method of procedure, the State acquired title to the area by right of eminent domain. The flats were filled and proper drainage was provided. Suitable streets and public spaces were laid out, certain portions of the lands were granted by the Commonwealth to educational institutions, and the remaining lots were sold to private parties. The reclamation of this considerable territory was of benefit not only to the inhabitants of Boston and neighboring communities in the abolition of a nuisance, but the net result financially was a substantial profit to the State. Similar work is going on in other sections and tidal flats along different portions of the water front of Boston Harbor have been and are being reclaimed by State agency.

Thus, to the gradual evolution of local topography by successive action of the rivers, sea, subterranean heat, and even the eruption of volcanoes around the shore of Boston Harbor, has been added annexation and reclamation, until Boston has reached its present day physical proporations, and while it is no part of the present narrative to enter into the field of prophecy, still history does repeat itself, and in the next 300 years, further and doubtless equally important changes are bound to come.

2. Means of Communication.

The little band of hardy pioneers who effected the settlement of Boston in 1630 were less concerned with land transportation than they were with water facilities, and their first efforts were naturally devoted to a consideration of wharf rights and ferry privileges. To reach Boston from any direction except the southwest one had, until 1661, either to cross one or more tidal waters or to follow the ship channel. Consequently, the question of terminal facilities for handling waterborne traffic had to be met, with the result that there was a common landing place on the shore of the northern sector of the Great Cove as early as 1634.

A little more than two months after the town was settled arrangements were made for setting up a ferry between Boston and Charlestown. This ferry, which was located at the foot of Prince Street, was established in 1631 and was granted to Harvard College a few years later, the revenue therefrom being used "to defray the expense of indigent students." It continued in effect until replaced by the Charles River Bridge in 1786, Harvard College to continue to receive for forty years thereafter an annual payment of 200 pounds as compensation for the loss of income from the ferry which it might have received had not the bridge been built. This bridge was in turn abandoned in 1899 in favor of the present Charlestown Bridge at a location slightly further up the River. With the erection of the Warren Bridge in 1828, several times relocated but at present leading from the foot of Beverly Street, the story of the connections between the City Proper and Charlestown is complete.

In the meantime, the General Court in 1638 had ordered a ferry to be set up from Boston to Winnissimmet and Noddle's Island (Chelsea and East Boston) followed by other public and private projects between the mainland and the towns lying to the north and east. As the years went on, considerable dissatisfaction was manifested with the ferry accommodations furnished by private corporations with the result that on April 1, 1870, the City Government, on the payment of $275,000, took possession of, and has since operated the North and South Ferries which had been running under private management since 1854. The opening of the Rapid Transit Tunnel in 1904 was the next important link, leaving the final chapter,— the construction of a vehicular tunnel between Boston Proper and East Boston as authorized under the provisions of Chapter 297 of the Acts of the year 1929 — yet to be written.

From points on the north immediate access to Boston for the first century and a half of its existence was had only by means of ferry boats across the Charles River, a line being established between Brighton and Cambridge in 1635, four years after the establishment of the Charlestown ferry, on the site of what was later known as the

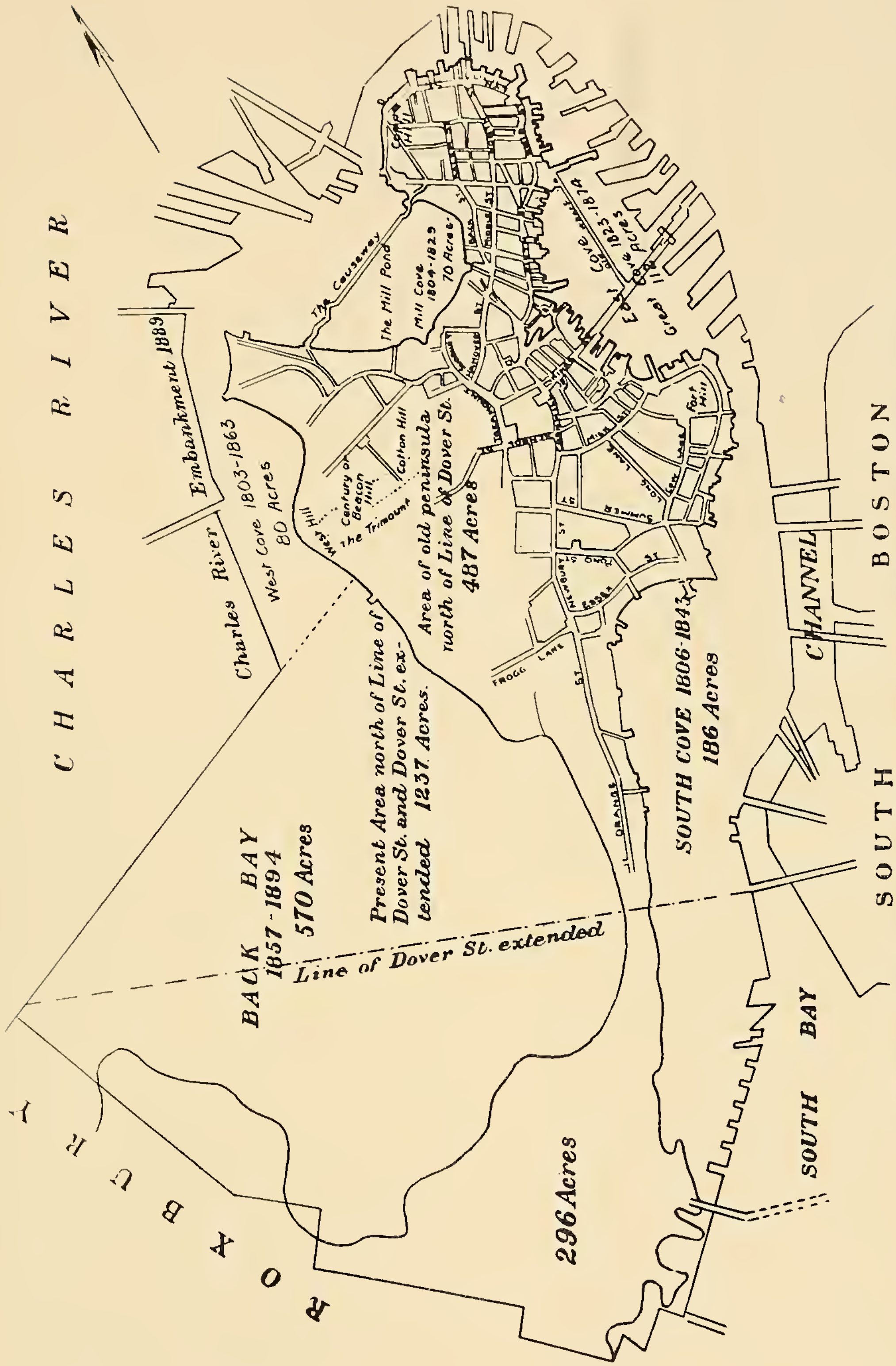


Figure 90.—Map of the Original Peninsula, Showing Fillings and Present Shore Line.
Total Land Area of Boston Proper in 1630, 783 Acres. Total Land Area of Boston Proper in 1900, 1,876 Acres.
Total Land Area of Boston Proper in 1910, 1,904 Acres.

(Courtesy State Street Trust Company)

North Harvard Street Bridge. This service continued in operation until 1662, when to obviate the inconvenience and perils of the ferry over which there was a large amount of travel especially on lecture days, it was replaced by the "Great Bridge" erected on the same site at a cost of 200 pounds. From this time on, until the opening of the Charles River Bridge in 1786, more than 100 years afterwards, the towns north of the Charles River could reach Boston only by way of this Great Bridge, which was swept away by a high tide in 1685, but was again rebuilt in 1690.

With its successor at the present time, the Anderson Bridge, as with the Arsenal Bridge leading from Brighton to Watertown, the John W. Weeks' Footbridge, primarily designed to connect Harvard College in Cambridge with the Harvard Graduate School of Business Administration on the Boston side of the river, the Western Avenue Bridge, the Cambridge Street-River Street Bridge, and the Cottage Farm Bridge this chapter is not particularly concerned. Most of them have been recently constructed or reconditioned and all serve a useful purpose. They are more or less local in character, however, and whether erected upon sites chosen by pioneer ancestors or determined upon as the result of later expediency, it is probably true that the part which they have played in intercommunity affairs is less pronounced than that of the arterial connections which it was found necessary to establish over the lower end of the Charles River Basin.

The West Boston Bridge, connecting Cambridge Street on the Boston side with Main Street on the Cambridge end, was originally opened to travel in 1793, provision being made for the usual payment of 200 pounds to Harvard College to be used in aiding worthy students. It was entirely rebuilt in 1854, and again nearly fifty years later, although it remained for the Legislature of 1927 to authorize its appropriate and official designation as the "Longfellow Bridge," thus perpetuating in the minds of the people the memory of the poet himself as he had in turn memorialized the earlier structure.

The opening to the public of Harvard Bridge in 1891, the construction of the Viaduct Bridge as a part of the Charles River Basin development, and the construction of the various bridges across the Fort Point Channel to South Boston afford the final links spanning the waterways between Boston and her neighbors on the north, the east, and the west.

To the south, or the landward side, the question of transportation resolved itself into a problem of the development of a highway system. It appears to have been less a problem in the early days, however, than a question of necessity and convenience. The early streets, obedient to the laws of expediency, naturally followed the curves of the hills, winding about their bases by the shortest routes and crossing their slopes at the easiest grades.

To the pioneer upon the western prairie it is comparatively easy to lay out a prospective city in squares and streets of unvarying size and shape; to the colonist of 1630 upon the rugged promontory of New England, it was a different matter. Without the means of surmounting the natural obstacles in the way, he proceeded to adapt himself to them. Thus the narrow winding streets, the crooked ways and alleys, the short cuts, the curious twists and turns, the paths and lanes worn by the feet of the early settlers, and established for their convenience three centuries ago, remain today practically unchanged and even cherished by posterity for their early associations.

Unfortunately, no list of the streets as they existed during the Colonial period is on record. In fact, with few exceptions, they had not then been named, and the only information available is such chance mention as can be gleaned from the Town Records, the Book of Possessions, and the written accounts of travelers. It must be borne in mind, however, that previous to 1684 only a very few of the principal thoroughfares deserved the name of streets. The rest were for the most part lanes and ways and paths, more or less worn and frequented according to their locality, so much so that the Royal Commissioners in 1664 reported: "Their houses are generally wooden and the streets are crooked, with little decency and no uniformity."

In June, 1636, an Order of the Court of Assistants or Council, as it was often called, provided for "a sufficient footway to be made from William

Coleborn's field and unto Samuel Wilbore's field, next Roxbury," which appears to be the origin of our present Washington Street, known in the beginning simply as High or Main Street, and later by four distinct names, Orange, Newbury, Marlboro and Cornhill, along the successive sections of the way, until all were at length united under the present designation, after the visit of General Washington to the city in 1789.

At the North End, three principal thoroughfares soon came into being,— Fore, Middle and Back Streets, now known as North, Hanover and Salem Streets. One of the earliest records of street widenings in the City of Boston took place in connection with Hanover Street, following the great fire of 1676, when the street was widened to what was probably a nearly uniform width of twenty-two feet. This widening was apparently accomplished by what may have been also the first exercise of the power of eminent domain, since it resulted in the adoption of an order by the Court.

"The Act of the Council, and return of the Selectmen of Boston, as above, being read and perused by the Court, who took notice that the street, as now laid out, is made wider and more accommodable to the public, and due satisfaction given and received by all persons concerned, *one only excepted*, the Court approves of the act of the Selectmen, and orders it to be proceeded in, and the person that hath not consented, to have the like proportionable satisfaction tendered him for so much of his land that is taken and staked out to the street."

Incidentally, this street widening was apparently preceded a few years by the first promulgation with regard to the regulation of street traffic. In October, 1662, the General Court passed an order reciting that,

"notwithstanding the wholesome orders hitherto made by the Selectmen of Boston against fast riding, many persons frequently gallop in the streets of that town to the great danger of other persons, especially children,"

and ordering that no one should in future gallop any horse there under a penalty of three shillings and fourpence for each offence.

In March, 1640, a street was laid out to lead up over the hill following the line of the present School Street, while Summer Street of the present day we find laid out as a highway in 1644. As an aftermath of the Revolution, Queen Street, originally Prison Lane, became Court Street, and King Street was changed to State. Beacon Street, we are told, first saw the light of day as "the way leading to the almshouse," an institution which survived at the corner of Beacon and Park Streets from 1662 until its removal to Leverett Street in 1801. Boylston Street, ending abruptly in a marsh, was appropriately heralded as "Frog Lane." High Street rejoiced in the designation of "Cow Lane," while Spring Lane has survived in name if not in dedication. Pudding, Leverett's and Mackerel Lanes have been handed down to the present generation as Devonshire, Congress and Kilby Streets, while the earliest available description of Shrimpton's Lane, until recently known as Exchange Street, has a familiar sound as — "a byway once so narrow that a cat could almost have jumped across it."

To attempt a complete enumeration of the street names of Boston, ancient and modern, would serve no useful purpose at this time, only enough being mentioned to link the present with the past and to serve as a nucleus for the list which appeared for the first time in 1708, one hundred and ten in number, with their names and boundaries. A noteworthy successor to this original list was compiled two centuries later (in 1910) under the direction of the Board of Street Commissioners of the City of Boston, giving a brief but comprehensive history of each street, alley, court and place as it then existed.

3. A Composite Street Plan

With the annexation of the surrounding communities Boston's thoroughfare problems multiplied due to the fact that Boston bears a different relation to its suburbs from that of many large cities where the center has been first formed and the periphery afterwards, the suburbs being thrown off by a force of growth from within. As a matter of fact, two segments, Charlestown and Dorchester, were established before the center was even attempted, and in the annexations which were later achieved as the result of

The Names of the STREETS, Lanes & Alleys,

Within the Town of *Boſton* in *New-England.*

At a Meeting of the Free-holders and other Inhabitants of the Town of Boſton, *duely Qualified & Warned according to Law, being Convened at the Town-houſe, the 22d. dsy of* September, Anno Domini. 1701.

Voted, That the Select-men of this Town are impowered to Aſſign & Fix Names, unto the ſeveral Streets and Lanes within this Town, as they ſhall judge meet & convenient.

At a Meeting of the Select-men of the Town of Boſton, *the 3d. day of* May, Anno Domini, 1708.

Ordered, That the Streets, Lanes and Alleys, of this Town, as they are now (by the ſaid Select-men) Named and Bounded, be accordingly recorded in the Town Book, and are as followeth, *viz.*

1. THE broad Street or Way from the Old Fortification on the Neck, leading into the Town as far as the late Deacon *Eliot*'s corner. Orange Street.

2. The Way below the late Deacon *Eliot's* Barn, leading from Orange Street Eaſterly by the Sea Side Beech Street.

3. The Way leading Eaſterly from the ſaid Deacon *Eliot's* corner, paſſing by the late Deacon *Allens*, extending to Windmill point. Eſſex Street.

4. The Way leading from the late Elder *Ransfords* corner in Eſſex Street, extending Southerly into Beech Street, and ſo down to the Sea. Rangfords Lane.

5. The Way leading from the late Capt. *Fraryes* corner Weſterly, to the bottom of the Common, with the return Southerly down to the Sea. Frogg Lane.

6. The Street from the corner of the Houſe now in the Tenure of Capt. *Turfrey*, nigh Deacon *Eliots* corner, leading Northerly as far as Dr. *Oakes*'s corner. Newbury Street.

7. The New Alley between Mr. *Blyns* & *Durants* in Newbury Street, leading Weſterly into the Common. Hogg Alley.

8. The Street leading Eaſterly from *Wheelers* corner in Newbury Street, paſſing by the Towns Watering place, as far as Capt. *Dyers* Barn. Pond Street.

9. The Way leading from *John Uſhers* Eſq his Barn Southerly into Eſſex Street. Short Street.

10. The Way leading from the lower end of Pond-ſtreet, North-Eaſterly into Church Green, by Summer Street. Blind Lane.

11. The Way from *Cowels* corner in Newbury Street, leading Weſterly into the Common. West Street.

12. The Way from *Elliſe's* corner nigh the upper end of Summer Street, leading Weſterly into the Common. Winter Street.

13. The Street leading Eaſterly from Dr. *Oake's* corner in Newbury Street, paſſing by the Houſe of Capt. *Timothy Clark*, extending to the Sea. Summer Street.

14. The Street from *Baxters* corner in Summer Street, leading Southerly by the late Deacon *Allens*, extending down to the Sea. South Street.

15. The Way from *Bulls* corner at the lower end of Summer Street, leading Southerly to Windmill point. Sea Street.

16. The Street leading from *Penemans* corner at the upper end of Summer Street, paſſing by the South Meeting-houſe, to Mr. *Haugh's* corner. Malborough Street.

17. The Way leading from *Briſcows* corner in Marlborough Street paſſing by Juſtice *Bromfields* into the Common Rawlons Lane

18. The Way leading from the South Meeting-houſe, paſſing by Mr. *Borlands*, and ſo down to the Sea by *Mr Hallaways*. Milk Street.

19. The Alley leading Southerly from *Southers* corner in Milk Street, to Capt. *Clarks* corner in Summer Street Bishops Alley.

20. The Lane leading South-Eaſterly from Mr. *Borland's* corner in Milk-Street to *Beards* corner in Cow Lane. Long Lane.

21. The Street where Mr. *Daniel Oliver* dwells, paſſing from Milk-Street up to Fort-Hill. Oliver Street.

22. The Way leading Southerly from Fort-Hill to *Morey's* corner in Summer Street. Cow Lane.

23. The Way from the lower end of Summer Street, leading North-Eaſterly by the Sea Side, with the return up to the Rope Walk. Flawnder Lane.

24. The Alley by *Whartons* houſe in Cow-lane, leading Eaſterly into *Harriſons* Rope Walk. Crooked Alley.

25. The Way from *John Roberts*'s houſe in Cow Lane, leading Eaſterly by Capt. *Bonners*, into the Rope walk. Gridley's Lane.

26. The Way from the upper end of Cow Lane on Fort Hill leading Eaſterly, paſſing by *Mr. Joſeph Hubberts* down to the Sea. Gibbs's Lane.

27. The Way leading from the Northerly Side of Fort Hill paſſing down Eaſterly by the Old Brew houſe into Battery March. Sconce Lane.

28. The Way leading from *Hallaway's* corner by the end of Milk Street, paſſing by the Battery, extending to the lower end of *Gibbs*'s Lane. Battery March.

29. The Way leading Southerly from *Gibbs*'s Lane on Fort Hill, paſſing by *Drinkers* to the Rope-walk. Belchers Lane.

30. The Way from Mr. *Haugh's* corner, leading Northweſterly by the Latin School, extending as far as Mrs. *Whetcombs* corner. School Street.

31. The Way leading from Mrs. *Whetcombs* corner weſterly through the upper ſide of the Common, and ſo down to the Sea. Beacon Street.

32. The Way leading from Beacon Street, on the upper ſide of the Common unto Mr. *Allens* Orchard. Davies Lane.

33. The Way leading from Beacon Street, between Capt *Alfords* and Madam *Shrimptons* Paſture, up to Centry Hill Centry Street.

34. The Street from the lower end of School Street, leading Northerly as far as Mr. *Clarks* the Pewterers Shop. Corn-Hill.

35. The Way leading from a Tenement of Capt. *Clark's* nigh the lower end of School Street, to Mrs. *Winſlows* corner in *Jayluffs* lane. Spring Lane.

36. The Street leading from *Cox* the Butchers Shop in Corn hill, paſſing by Major *Walleys*, as far as the corner of *Mr. Olivers* Brick *Ware-houſe*. Water Street.

37. The Alley leading from the end of Water-Street, through Mr. *Olivers* Land by *Odell's* into Milk Street. Coopers Alley.

38. The Way leading from Water Street, paſſing between Major *Walley*'s and Mr. *Bridghams* lands into Milk Street. Tanners Lane.

39. The Lane paſſing from Water Street into Milk Street, according to the Name by which it hath been formerly known. Joylieffs Lane.

40. The Way paſſing Round the Old Meeting-Houſe. Church Square.

41. The Way leading from Corn Hill, including the wayes on each ſide of the Town Houſe, extending Eaſterly to the Sea. King Street.

42. The Street leading from Mr. *Derings* corner in Corn Hill to *Houchen*'s corner at the upper end of Hanover Street. Queen Street.

43. The Way leading from the Manſion Houſe of the late *Simon Lynde* Eſq. by Capt. *Southacks*, extending as far as Col. *Townſends* corner. Trea Mount Street.

44. The Way leading from *Melyen*'s corner near Col. *Townſends*, paſſing through the Common along by Mr. *Sheafs* into Frog Lane. Common Street.

45. The Alley leading Eaſterly from the Common, on the North ſide of Madam *Uſhers* Houſe. Turn again Alley.

46. The Way leading from the Exchange in King Street, paſſing by Mrs. *Phillips*'s into Water Street. Pudding Lane.

47. The Way leading from King Street, by the Houſe of *Iſaac Addington* Eſq. with the Return into Pudding Lane. Half-ſquare Court.

48. The Way leading from Mr *Mackarty*'s corner in King Street, to Elder *Bridghams* Ware-Houſe in Water ſtreet. Leverets Lane.

49. The way leading from Juſtice *Dummers* corner in King-ſtreet, paſſing over the Bridge as far as Mrs *Daſſorns* corner in Milk-ſtreet. Mackeril Lane.

50. The way leading from the Houſe formerly the Caſtle-Tavern in Mackeril-lane, paſſing by Mr. *Hallaways* wharffe to the Sea. Crabb Lane.

51. The way leading from the Sign of the Orange Tree, paſſing by Mr. *Stephen Minots* to the Mill Pond, and from thence to the lower end of Cold-lane. Sudbury Street.

52. The way leading from *Emmons's* corner paſſing by Juſtice *Lynde*'s Paſture, extending from thence weſterly to the Sea. Cambridge Street.

53. The way paſſing on the Northerly ſide of Livery-ſtable, in Juſtice *Lynds*'s Paſture, to Mr. *Allens* Farm-houſe Green Lane.

54. The way from Mr. *Pownings* corner by Dock-ſquare, leading *Southerly* into King-ſtreet. Crooked Lane.

55. The ſquare from the Houſe of *Eliakim Hutchinſons* Eſq. to Mr. *Pembertons* corner on the one ſide, and from *Kenny*'s Shop to Mr. *Meers*'s corner on the other ſide. Dock Square.

56. The way leading from Major *Savage*'s corner in Dock-ſquare, to Madam *Shrimptons* corner in King-ſtreet. Shrimptons Lane.

57. The way leading from Mr *Meers*'s corner along by the ſide of the Dock, as far as the corner of the Ware-Houſe, formerly Major *Davis*'s. Corn Market.

58. The Alley leading from Mr. *Mountforts* in Corn Market, to Capt. *Fitch*'s corner in King-ſtreet. Pierses Alley.

59. The way leading from Juſtise *Palmers* Ware-Houſe in Corn-market, up to *Mr. Moorcocks* buildings. Corn Court.

60. The way leading from Mrs. *Butlers* corner, at the lower end of King-ſtreet, to the Swinging Bridge, & from thence to the lower end of *Woodmanſies* Wharffe. Merchants Row.

61. The way leading from *Platts*'s corner, paſſing Northweſterly by the Sign of the Dragon to the Mill Pond. Union Street.

62. The Street from between *Houchens*'s corner and the Sign of the Orange Tree, leading Northerly to the Mill Bridge. Hanover Street.

63. The way leading from Mr. *Pembertons* corner at the end of Dock-ſquare, to Juſtice *Lyde's* corner in Hanover ſtreet. Wings Lane.

64. The way leading from *Wings* Lane to Mr. *Colmans* Church, and from thence the two ways, *viz. Southerly* to Queen-ſtreet, and *Eaſterly* to Dock-ſquare. Brattle Street.

65. The new way leading from Mr. *Pollords* corner in *Brattle*-ſtreet, thro' Mr. *Belknaps* Yard into Queen-ſtreet Hilliers Lane.

66. The way leading Northweſterly from Mr. *Harris*'s corner in Hanover-ſtreet, down to the Mill Pond. Cold Lane.

67. The way leading from Capt. *Ballantines* corner nigh the Mill-bridge, to the corner of Capt. *Fitches* Tenement in Union Street. Marshalls Lane.

68. The way leading from *Brooks* corner in Marſhalls Lane, paſſing by Mr. *Bulfinches*, to Scottows Alley. Creek Lane.

69. The way leading from Creek Lane to Capt. *Bows* corner, in Union Street. Salt Lane.

70. The way leading from Creek Lane, to Mr. *Webbs* corner in Union *Street*. Marsh Lane.

71. The way leading from the ſign of the Star in Hanover Street paſſing Northerly behind Capt *Evertons* houſe Link Ally.

72. the way from the Conduit in Union Street, leading Northerly over the Bridge to *Elliſtons* corner, at the lower end of Croſs Street Anne Street.

73. The way from Mr. *Antrams* corner nigh the Conduit, leading North-eaſterly by the ſide of the Dock, as far as Mr. *Winſors* Ware-houſe. Fish Market.

74. The New way from Union Street, paſſing Southweſterly between the buildings of the late Capt. *Chriſtopher Clark* deceaſed. Minots Court.

75. The Alley by Capt. *Abijah Savages* in Anne Street, leading Northweſterly to Creek Lane. Scottows Alley.

76. The way between Capt. *Winſors* and Mrs. *Pembertons*, in Anne Street leading to the Wharfes by the Swinging Bridge. Swingbridge Lane.

77. The Street from Mount-joys corner at the lower end of Croſs Street, leading Northerly to the Sign of the Swan by Scarlets Wharfe. Fish Street.

78. The way leading Northweſterly from Mr. *Thomas*'s corner in Anne Street. Paddeys Alley.

79. The Street leading from the Mill Bridge Northerly, as far as Mr. *Jonas Clarks* corner at the end of *Bennet Street*. Middle Street.

80. The way leading Northerly from *Stanburyes* corner nigh the Mill Bridge, as far as Mr. *Gees* corner in Prince-ſtreet Back Street

81. The way leading from the Mill Pond *South-Eaſterly*, by the late Deacon *Phillips*'s Stone-houſe, extending down to the *Sea*. Cross Street.

82. The way from the *North-weſterly* end of *Croſs Street* paſſing by *Vereings* houſe *Northerly* nigh the Mill Pond. Old Way.

83. The Lane leading from *Middle Street*, paſſing by the Houſe of the late Capt. *Timothy Prout*, into *Fiſh Street*, and ſo down to the Sea. Wood Lane.

84. The way from *Wales*'s corner in *Middle Street*, leading North-weſterly into Back-ſtreet. Beer Lane.

85. The Alley leading from *Anne Street*, between the late Capt. *Lakes* and *Nanneys* buildings, to Mr. *Indecots* ſhop in Croſs-ſtreet. Elbow Alley.

86. The Alley leading from *Fiſh Street* between the Lands of *John Clark* Eſq. and the ſucceſſors of Mr. *Samuel Gallop*, Deceaſed, into Middle-ſtreet. Gallops Alley.

87. The *Street* leading Northweſterly from *Morrels* corner in Middle-ſtreet, paſſing by the Houſe formerly the ſign of the Black Horſe, extending to the *Sea* at Ferry-way. Prince Street

88. The *Street* leading Northerly from the end of *Bennet Street*. nigh Mr, *Jonas Clarks*, extending to the Sea. North Street.

89. The Street leading *South-Eaſterly* from *Williams*'s corner, nigh Mr. *Jonas Clarks* down to the Sea, by *Scarletts Wharffe*. Fleet Street,

90 The Alley leading *North-Weſterly* from the North Meeting-Houſe into Middle-ſtreet. Bell Alley

91. The Square lying on the Southerly ſide of the North-Meeting-Houſe, including the ways on each ſide of the Watch-Houſe. Clarks Square.

92. The Way leading South Eaſterly from the North-Meeting-Houſe into Fiſh Street. Sun Court.

93 The Way leading from the North-Meeting-Houſe Northerly by Capt. *Tho. Barnards* into Fleet Street. Moon Street.

94. The Way leading Northerly from Mrs. *Winſlys* corner between Col. *Foſter's* and Mr. *Frizzel's* into Fleet Street. Garden Court.

95. The Street leading Northerly from *Mr. Everton's* corner, nigh *Scarlet's Wharſe*, to the North Battery. Ship Street.

96. The Way leading North-Weſterly from the North-Battery, to the Ferry way by *Hudſon's* Point. Lyn Street.

97. The Way leading Weſterly along the ſhore from *Hudſon's* Point to the Mill Stream by Mr. *Gee's* Ship yard. Ferry Way.

98. The Street leading North-Weſterly, from Mrs. *Ransford's* Corner in North Street towasds the Ferry Point at *Charles Town*. Charter Street.

99. The Way leading from *Carwithys* Corner in Prince Street, to Mr. *Phips*'s Corner in Charter Street. Salem Street.

100 The Way leading Northerly from *Teavis*'s Corner in Prince Street, to the end of Ferry-way by *Hudſons*'s Point. Snow Hill,

101. The Way leading South Eaſterly from Snow Hill to Salem Street. Hull Street.

102. The Way leading North-weſterly from Mr. *Jonas Clarks* Corner to Salem Street. Bennet Street.

103. The Way leading N. weſterly from Capt. *Stevens*'s Corner in N. Street, with the return into Bennet Street. Love Street.

104. The Alley leading from the Burying place in Charter Street to *Adkins*'s Lime Kiln in Lyn Street. Lime Alley.

105. The Alley leading from Charter-ſtreet down by *Benj. Williams*'s in Lyn-ſtreet. Sliding Alley.

106. The Way leading from Charter-ſtreet down by Mrs. *Buckley*'s into Lyn-ſtreet. Henchmans Lane.

107. The Alley Leading from Charter-ſtreet down through Mr. *Greenoughs* Ship Yard into Lyn-ſtreet Greenoughs Alley

108. The Alley leading from North-ſtreet down by the Salutation into Ship-ſtreet. Salutation Alley.

109. The Alley leading from North-ſtreet along by *Mr. Will. Parkmans* into Ship-ſtreet near the North Battery, Battery Alley.

110. The Alley leading from North-ſtreet down to Capt. *Richards*'s corner in Ship-ſtreet. White Bread Alley.

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FIGURE 91.—THE FIRST RECORDED LIST OF BOSTON'S STREETS. Published as a Broadside in 1708.

convenience, necessity or mutual agreement, Boston found itself possessed of a number of lusty, well-defined, and entirely unrelated street systems. It is not, therefore, the story of one municipality and its problems but rather a record of the independent growth of nine separate street systems and a half-hearted attempt from time to time as the boundary lines became absorbed to fit together the different elements into one workable whole. Naturally, it has been an extremely difficult, and at times a quite impossible task, due to topographic conditions, building developments and independent activities.

Nor has the fact that Boston has been repeatedly tried by fire been of any particular assistance in reshaping its street plan, although certain specific improvements have resulted.

Following the great fire of 1872 which laid waste a considerable area of the downtown business section, Mayor Pierce declared in his inaugural:

"The best form in which we can commemorate the great disaster which has overtaken us is by establishing wider streets in the district covered by the fire, and improved methods in the construction of buildings throughout the city."

The old streets were so narrow and crooked that it was at first proposed to lay out the territory on an entirely new plan but it was found on examination that the city could not give a good title to some of the land included in the old streets and the improvements were therefore restricted to the widening and straightening of the old ways, the total expenditure during the year 1873–74 alone amounting to nearly six and a half million dollars. Additional street improvements at the time included the laying out of Columbus Avenue and Dartmouth Street; while in later years, the fire of 1893 is said to have made possible the widening of Essex Street.

The annexation of East Boston in 1637 was naturally unaccompanied by any serious traffic or transportation complications, the few inhabitants being much more concerned with wharf and ferry privileges and content to allow their means of communication within the island to develop as the result of convenience or habit.

The settlement of Dorchester in June, 1630, three months before the settlement of Boston itself, included also the settlement of South Boston, which was then known as Dorchester Neck. For the first century it was used largely for pasturage and for planting, with little thought of its development for dwelling purposes. In fact, the first dwelling house in South Boston was not erected until 1673 and during the 100 years from 1700 to 1800 the number of families increased only from three to ten. It is obvious, therefore, that no very elaborate street system was needed for the first two centuries, although the customary "ways" grew up as matters of convenience.

With its annexation to the town of Boston, in 1804, Dorchester Neck became known as South Boston. The area which comprised everything east of what are now known as Dorchester and Ninth Streets consisted of about 560 acres of land. The number of inhabitants was about sixty. The annexation bill as adopted by the Legislature provided that the Selectmen of Boston should be authorized to lay out such streets and lanes as in their judment might be for the common benefit and that no damages or compensation should be allowed for such streets and lanes as might be laid out within twelve months of the passing of the Act, although the town was not obliged to complete the streets so laid out sooner than seemed expedient. Mr. Mather Withington, a leading surveyor of the town, was chosen to draw a plan for the streets of South Boston with instructions to have them run north and south, with cross streets east and west. The main thoroughfare leading to Dorchester, known for the first fifty years as "the way to the Castle" and later as "the old road", was laid out at a width of 80 feet, and its name changed to Dorchester Street. Broadway was laid out 80 feet in width and, paralleling on the north, First, Second and Third Streets, each 50 feet wide. On the south also, paralleling Broadway and running east and west from Dorchester Street, Fourth, Fifth, Sixth, Seventh and later Eighth and Ninth Streets, were planned, all 50 feet in width and varying from 200 to 300 feet distant from each other. Intersecting these and at right angles with Broadway, cross streets 50 feet wide

and 500 feet apart were provided. The original plan was lost, but another drawing, as near the original as possible, was prepared twenty years later, with such additional streets as were found to have become necessary owing to the rapid increase in population. Thus the framework of South Boston's local street plan was evolved, requiring comparatively little as time went on beyond acceptance, construction, and adjustment to keep pace with local and general conditions.

Our earliest topographical description of Roxbury a few years after its setlement in 1630 is "a fair and handsome country town, the inhabitants of it being all very rich." To it belongs the distinction of being the only suburb having from the beginning physical connection with the community which was later destined to become the Capital City of Massachusetts. A narrow strip of land, scarcely more than a mile in length, descriptively termed "The Neck," afforded the only means of communication between Boston and the main land for more than a century and a half. It was along the narrow road which traversed this isthmus that George Washington in 1789, dressed in his old Continental uniform and attended by his staff, made his last entry into Boston from the Roxbury line, to revisit the scene of his memorable achievement and to leave behind him a permanent memorial in the shape of his own name as the designation of the route over which he passed and which had up to that time rejoiced in a variety of cognomens.

The early settlers in Roxbury naturally clustered about the highway at the northeasterly end of the town, gradually extending themselves in various directions towards the neighboring communities, the primitive street system doing little more than to keep pace with the necessities of the people for communication with each other. In those early days the highways were let out by the year for pasturage and were generally fenced across to keep in the cattle. In 1652 a committee was appointed to stake them out and to settle all questions respecting boundaries. Among the twenty highways laid out in 1663 were those now known as Washington, Roxbury, Tremont, Dudley, Perkins, Centre and Warren Streets and Walnut Avenue, four rods wide, and Parker, School, Boylston, Eustis, Dennis, Albany, Green, Heath, and Ruggles Streets, two rods in width.

Although like other New England towns Roxbury was a little republic of itself, the growth in numbers was slow. At the close of the Revolution and for nearly a half century afterwards it was still a suburban village with a single narrow street. From 1820 on, considerable activity was manifest in public affairs, existing streets were widened and improved, and new streets constructed. The population and business of the town increased rapidly until after more than two centuries of town government Roxbury by legislative enactment became a city in 1846. The project of annexing Roxbury to Boston was for years strenuously opposed, but the arguments of those who foresaw the necessity for a common system of streets, sewers, water supply and drainage for the two cities, already so closely united commercially and geographically, prevailed, and early in 1867 a committee of the Legislature unanimously reported that "the benefits to Roxbury, the necessities of Boston and the interests of the Commonwealth sanction and require annexation." Thus Roxbury, having led an entirely separate and independent existence for more than 200 years, and Roxbury's streets, became part of Boston's problem in 1868.

Practically the same is true of Dorchester. Settled in 1630, some months previous to the settlement of Boston itself, Dorchester maintained a separate existence until 1870, or for 240 years. During that time very few external changes took place, although it might be said, as is true of many New England towns, it was larger on the inside than on the outside. For nearly two centuries, or until the annexation of South Boston to Boston in 1804, the history of the two suburban communities runs parallel. Primarily a residential community, such thoroughfares as there were grew out of habit and convenience rather than design. On the eve of its annexation to the City of Boston in 1870 the number of inhabitants in Dorchester was estimated at 12,000, while its appropriation bill for that year included $18,000 for street widening purposes — Hancock, Minot, Adams and Bird Streets.

It will be recalled that Charlestown from the beginning profited by the mission entrusted to one of its first settlers, Thomas Graves, who was commissioned by the Massachusetts Company in England to go to New England in their interests and lay out a town, which he proceeded, without delay, to do. In 1670 the first survey and record of the streets and highways were made, the two principal ones being Main Street and Bow Street, the latter being later known as Rutherford Avenue. Two later surveys were made, one in 1713 and the other in 1766, but in 1776 the district was visited by a conflagration which spared only fifteen houses. The highways and ancient records and the gravestones on Burial Hill on the westerly side of the town are all that remained as memorials of the first century and a half of the existence of the ancient Mishawum; nor did there remain any plan of the town made before its destruction.

In September, 1780, it was voted that all streets, lanes, etc., within the district should be laid open from the first day of May, at an estimated cost of 2,600 pounds. As a matter of fact the actual cost was 4,595 pounds, a circumstance which is not without counterpart in our own times. The roadway from Bunker Hill was opened a few years later, the bridge to Boston was built, the Navy Yard was established, and other streets developed. In 1802 the town was surveyed for the fourth time, although it was not until 1826 that the streets generally were named, and the numbering of the houses began. Agitation for annexation to Boston began soon afterwards, but it was not until 1873 that the measure was finally enacted to become effective the following year.

While no contemporaneous description of the town of Brighton in its primitive days remains to us, it is easy to picture a small rural settlement of scattered farms with a river front of six miles or more. Settled in 1635 it was originally part of Cambridge, but in 1807 was incorporated as a town of Norfolk County. As early as June, 1631, a canal was made from the Charles River to what is now South Street, and four years later a ferry was established across the River from the foot of Dexter Street. Opposite this point was the road to Boston, called "the highway to Roxbury." The old road which ran through the easterly portions of Brookline and Brighton is now known as Harvard Avenue. Another early highway was "the Roxbury Path," a portion of what is now Washington Street, by which the Roxbury people went to the Grist Mill at Watertown. Market Street, laid out in 1656, was known from 1744 to 1840 as Meeting House Lane. The crooks and curves of these old thoroughfares sufficiently distinguish them from the straighter highways of more recent dates. At the end of the first 50 years of its existence Brighton's population consisted of 28 families; another 50 years and it had increased to about 300 persons. On its incorporation as a town in 1807 it numbered about 600, and upon its annexation to Boston 67 years later the population had increased approximately tenfold.

West Roxbury was the third municipality to cast in its lot with Boston during the year 1874, it having been set off from Roxbury and incorporated as a separate town in 1851. It was wholly agricultural at the time and objected to the expenditure of sums of money raised by general taxation upon improvements made almost wholly in the eastern or business portion of the section. With its annexation twenty-three years later Boston came into possession of about 8,000 acres of land and an added population of 9,000 persons.

No further annexations took place until 1912 when Hyde Park with an area of about 3,000 acres and a population of nearly 16,000 persons, by referendum vote in each community, voted to become part and parcel of the capital city.

Thus we have the growth of Boston during its first 300 years, with particular reference to physical changes and street developments. With the exception of East Boston, which might be considered part of the original settlement, and South Boston which was annexed 125 years ago, it is apparent that it is only within the last 60 years that matters of common interest have become matters of common concern. The street systems of Roxbury, Dorchester, Charlestown, Brighton, West Roxbury and Hyde Park were already fairly well crystallized to meet local needs, with little or no regard to the adjacent communities. Boston's major problem, there-

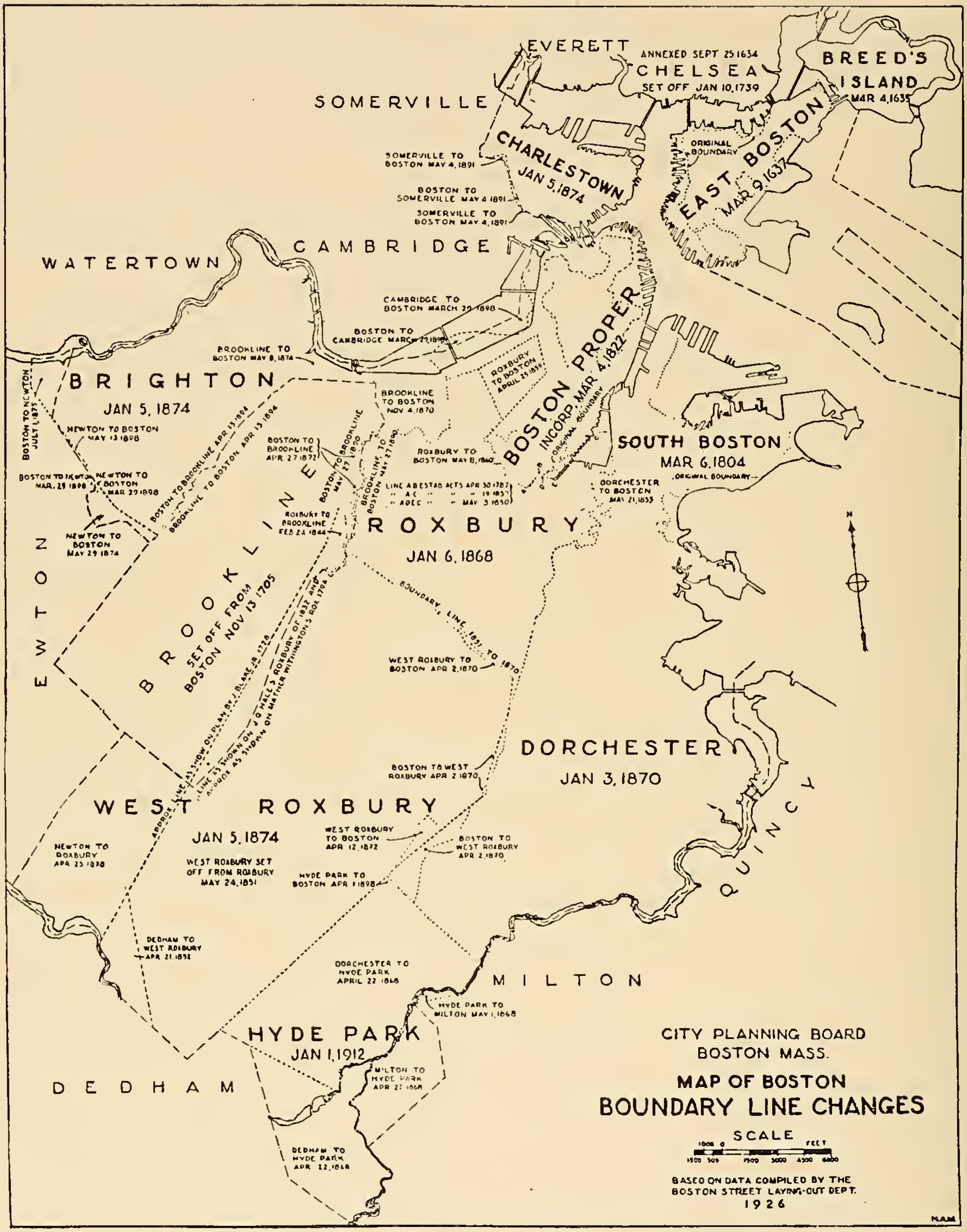


FIGURE 92.—THE GROWTH OF BOSTON DURING ITS FIRST 300 YEARS.

fore, in the development of its thoroughfare system has been one of co-ordination in an effort to fit together the disjointed pieces of mosaic into one efficient and harmonious street pattern to meet the needs of the entire city.

4. Joint Ownership

The diversity of interests represented in the ownership and control of the streets of Boston is probably no different from that which is to be found in any other large city under similar circumstances, but their existence in spite of the most careful co-ordination must at times make for confusion and complication in administration.

The assistance of the Federal Government so far as highways in the State of Massachusetts is concerned was authorized in 1916 under an act passed by Congress and approved, providing that the "United States shall aid the states in the construction of rural post roads and for other purposes." The act further provided that one half the cost of constructing any project agreed upon by the Secretary of Agriculture and the State Highway Department shall be provided for from state or local funds and that the amount that the Federal Government shall pay on any mile of road shall not exceed $10,000 a mile for its half, exclusive of the cost of bridges of more than 20 feet clear span. This maximum limitation was later amended to $15,000 a mile.

Still further amendments were adopted in 1921 in the form of the Federal Highway Act which even more clearly indicated the nature of the assistance to be rendered by the Federal Government by declaring that the term "highway" for which Federal aid was contemplated "shall not include any highway or street in a municipality having a population of 2,500 or more, as shown by the last available census, except that portion of any such highway or street along which within a distance of one mile the houses average more than 200 feet apart."

The result has been that although the State of Massachusetts has received approximately $10,000,000 as Federal highway aid up to the present time, involving no less than 200 projects and about 700 miles of thoroughfare, not a cent of Federal highway money has been spent in the City of Boston. Perhaps this is not to be expected in view of the fact that the emphasis has been laid from the beginning upon "rural post roads" and sparsely settled districts rather than the large centers of population.

The same is true to only a slightly less degree in connection with the construction of State highways. The total length of State highways in Massachusetts at the present time is upwards of 1,600 miles, yet, with the exception of Washington Street from La Grange Street, West Roxbury, to the Dedham line, a distance of approximately $1\frac{1}{2}$ miles, which was authorized under the provisions of chapter 574 of the Acts of the year 1907 and which involved an expenditure of $165,000, these projects are entirely outside of the City of Boston.

It is a fact, however, that one half the cost of metropolitan parkway construction has usually been paid from State Highway funds, the remaining half being assessed on the cities and towns in the Metropolitan district on the basis of valuation.

The "Southern Artery", of which 2.48 miles lie in the City of Boston and 2.62 miles lie in the City of Quincy, was constructed by the State in accordance with special legislation passed in the years 1925 and 1926, authorizing the laying out and construction of convenient and adequate ways for motor vehicles and other traffic in the cities of Boston and Quincy. This special legislation provided that the cost should not exceed $1,800,000, one-third of which was to be paid by the Commonwealth, one-third by the cities and towns of the Metropolitan Parks District in proportion to the respective taxable valuations of the property, and one-third by the cities of Boston and Quincy in the proportion which the amount expended in each of said cities bears to the whole cost of the work. The special legislative act also provided that upon completion of the route all parts of the same should become public streets or ways of the respective cities within which they lie and should be kept in good repair by them. The work was completed on December 21, 1927, and the mayors of the cities of Boston and Quincy were notified accordingly.

The adoption of the gasolene tax in 1928 changed the method of raising funds toward the

construction and maintenance of highways and provided that all sums received as excise, penalties or forfeitures, interest, costs of suit and fines, should be credited to the Highway Fund for expenditure, among other things, under the direction of the State, for maintaining, repairing, improving and constructing town and county highways, in this instance the word "town" including also cities. A considerable sum of money is spent annually by the State Department of Public Works in the construction of these town and county ways — nearly $2,000,000 in the year 1928, — no portion of which has been spent at any time in the City of Boston.

As a matter of fact, Boston has even been required to pay for highways which have been laid out by the County Commissioners of Middlesex County. This was the result of a legislative act which transferred certain powers over highways in Chelsea, that had been exercised by the Mayor and Aldermen of Boston, to the County Commissioners of Middlesex, while Boston was obliged to pay the bills. After several demands of a similar nature, the General Court intervened, and Boston was relieved to a certain extent, although the entire relationship between city and county and even the Commonwealth, so far as the county is concerned, is confusing and not entirely beneficial to the City of Boston.

Under the provisions of a Legislative Act passed in 1893, an area comprising thirty-seven cities and towns was established as a Metropolitan Parks District. The purpose was the gradual construction of parks and parkways, all to be connected so far as possible and to form one complete system. The funds needed were to be provided by the Commonwealth through loans; but the cost of maintenance, as well as requirements for interest and sinking funds, were to be paid by the cities and towns within the Metropolitan district. The larger part of the area included in the Metropolitan park system lies outside of Boston and the city's responsibility for it is purely financial. There are, however, within the city limits nearly 1,000 acres of Metropolitan parks and parkways, notably the Stony Brook Reservation in West Roxbury.

The development of the Charles River Basin with its embankment and park on the Boston side, the dam across the Charles River and the construction of a new bridge between Cambridge and Boston to serve as a highway, was another Metropolitan undertaking.

Of its own park system Boston is justly proud. With the Common as a magnificent beginning, it has spread out in every direction until today the total valuation of city properties dedicated to recreational use is more than $70,000,000. The park areas are physically connected by an unbroken system of wide and attractive connecting parkways from the Common at one extremity to City Point at the other, encompassing in its wide sweep Commonwealth Avenue, the Fens, Riverway, Jamaicaway and Arborway, to Franklin Park, Columbia Road, the Strandway and Marine Park. Not alone is the construction and control of these parkways, nearly 45 miles in length, vested in the City of Boston Park Department, but it also exercises jurisdiction over buildings and structures erected on land which abuts on, has an entrance into, or is within certain specified distances from the various parks and parkways.

Not even the thoroughfares over which the Street Departments of the City of Boston are supposed to exercise complete and exclusive jurisdiction are entirely free from complexities. There are in the city approximately 6,000 streets, avenues, courts, places, etc. Of this number the so-called "accepted" or public streets — streets which have become a public charge by operation of law, through dedication, special order, or other procedure— have a total length of nearly 700 miles. These accepted streets involve perpetual care on the part of the city. On the other hand, there are included in the list a large number — nearly 50 per cent — of private ways which have not become a public charge by operation of law and in connection with which the city assumes no responsibility for care or maintenance. Many of these ways are legacies from the early days of the municipality, and are being gradually absorbed through annual appropriations for their improvement and acceptance. The number of streets and the mileage are naturally being added to yearly, accompanied by betterment assessments and awards for damages.

5. Financing

The cost of public improvements in the City of Boston has ever been a fruitful topic for discussion. For the first 100 years public works in general were carried on in a more or less haphazard method. It is recorded that in 1758 the town of Charlestown voted to apply to the General Court to authorize a lottery by means of which to raise funds for paving Main Street. The petition was granted in April, 1760, and the Boston *News Letter* in its issue of July 17 carried an advertisement of the scheme of "Charlestown Lottery No. 1"; 6,000 tickets were offered at $2 each, 1,255 prizes were provided with a cash value of $10,800, and the remaining $1,200 was utilized to defray the expense of the improvement itself.

This was apparently a common expedient in those days for the prosecution of public works. Not only was the practice resorted to repeatedly in street developments, but Faneuil Hall Market, which was largely destroyed by fire in 1761, was rebuilt by means of a similar lottery, some of the tickets bearing the signature of no less a personage than John Hancock, the first governor of the Commonwealth under the Constitution, and the writer of the famous autograph first penned upon the Declaration of Independence.

The first systematic and co-operative enterprise having in view the enlargement of the limits of Boston by making new land was the Front Street improvement, now Harrison Avenue, as designated soon after the death of President Harrison. The improvement which was begun by the Front Street Corporation in 1804, completed in 1805, and accepted in 1809, consisted of the construction of a street generally parallel with Washington Street on the east, the owners of the flats inclosed thereby being left to fill in the intervening space each on his own land. The cost of the improvement was $65,000, and was paid for by the persons whose estates were inclosed. About nine acres of land available for building purposes were thus added to the area of the town under agreement of owners to build no structure less than 10 feet from the line of the street, probably the first instance of a restriction upon real estate in Boston which had in view the ultimate symmetry and appearance of the locality.

From the meagre records which remain of early town expenditures it is interesting to note that between May, 1818, and April, 1819, one Daniel Baxter was paid $97.92 for 49 feet of land to widen Boylston Street and erect a fence. During the same period David Sears was paid $567 for 368 feet of land to widen Beacon Street, and John Roulston was paid $180 for 368 feet of land to widen Beach Street, while William W. Motley received $300 for damage sustained by him in taking down his house and for land to widen Elm Street. The total amount spent for street work in that year exclusive of paving and repairs was $1,167.70.

The first annual report of the City of Boston (1822–23) records the sum of $823.19 paid for land to widen Hanover, Washington and Orange Streets and Bowdoin Square.

The creation of new land by filling, and the cutting down of Beacon Hill gave opportunity for the laying out of streets in a regular system such as was never thought of in the original plan, but as Boston increased in size great inconveniences arose out of the narrowness and crookedness of the old streets. Some enterprises of much importance considering the times and the wealth of the city were undertaken as occasion seemed to require, but the aggregate amount expended in the widening and extension of streets from 1822 to 1866, a period of forty-four years, was but $4,418,283 in the City Proper, $75,980 in South Boston, and $4,742 in East Boston, the total, $4,499,005 representing scarcely more than $100,000 a year. This did not include the cost of grading the streets nor the construction of bridges. Of the expenditure in the City Proper, the North End received much the larger share, Blackstone, Commercial, Friend, Hanover, North and Union Streets having had more than a million dollars expended upon them.

In the year 1866 the Legislature gave the city what it had been long seeking — the power to lay out, widen and grade streets and to assess upon each of the estates abutting on such streets a sum not exceeding half the amount which the estate benefited by the improvement. Previous to the passage of this act, the street widenings in the old sections of the city had generally been made by taking portions of estates where the

FIGURE 93.—WASHINGTON SQUARE, FORT HILL, ABOUT 1870.
Showing Fort Hill before and during the process of demolition.
(Courtesy State Street Trust Company)

owners had given notice of intention to build. By pursuing this policy, the expense of paying for buildings and for interference with business was saved, but it was, nevertheless, a very expensive way of doing the work as the assessments for damages on account of the method of taking property were generally very heavy and the city was unable to get the benefit of the widening in the increased value of the property for taxation purposes until the improvement was complete.

by ugly tenement houses. Six years was required to complete the project, the work being finally finished in 1872. The cost, estimated at half a million dollars, in the end amounted to three times that amount. In return Boston added 20 acres to its business area. The excavated material was largely employed in filling for the extension of Albany Street, between Troy Street and the Dover Street Bridge. This development was undertaken both for sanitary reasons

FIGURE 94.—FORT HILL SQUARE IN 1929.
(Courtesy Fairchild Aerial Surveys, Inc.)

The year 1866, therefore, is said to have marked the beginning of a new era in street improvements, and projects of considerable magnitude were undertaken, including the reduction of Fort Hill. The territory involved was bounded by Pearl, Milk, and Broad Streets, and in 1867 and the following years an average reduction of 25 feet was made in the grade of the whole district. The hill at its highest point was 80 feet above sea level, and although at one time the top was occupied by a pleasant park and the homes of wealthy citizens, these had become crowded out and because the land was greatly needed for commercial purposes.

The filling in of the water spaces between wharves for the formation of Atlantic Avenue was considered one of the most ambitious improvements of its kind ever undertaken by the city. It was laid out in 1868 across the docks between Fort Point Channel and the East Boston Ferry ways, covering almost exactly the site of the ancient "barricado," erected in 1673 as a defense in case of any inimical harbor attack. The total cost of the Avenue to the year 1880 was

nearly two and one half million dollars making it, next to Washington Street, the most expensive street in the city at that time.

The cost of street improvements following the great fire of 1872 is said to have amounted to more than six million dollars, including the construction of the Washington Street roadway, between Summer-Winter and Milk Streets, to an average width of 60 feet. Summer, Milk, Devonshire, Water, Congress, Federal, Hawley, Arch, and Pearl Streets were all improved, and Postoffice Square was laid out at an expense slightly in excess of $100,000.

The City Auditor's report for 1892 contains a list of the streets laid out and widened from June 1, 1822, together with the amounts expended in each case, showing a total (1822 to 1892) of $31,223,775.53. To this should be added $1,584,251.20 for the Fort Hill Improvement; $2,428,248.96 for the Suffolk District Improvement in the area bounded by Washington, Dover, Tremont and Pleasant Streets (now Broadway); $1,183,363.12 for the Church Street district improvement in the area bounded by Tremont and Pleasant Streets, Columbus Avenue and Ferdinand Street; and $490,102.16 for improvements in the Northampton Street district; making a grand total of expenditures for street widenings and changes of grade, exclusive of the cost of construction, from 1822 to 1892, of $36,909,740.97.

In commenting upon this general condition, the Rapid Transit Commission, in a report to the Massachusetts Legislature, under date of April 5, 1892, stated:

"It is well known that vast sums of money have been spent from time to time on street widenings and changes of grade in the city of Boston, and yet the benefit derived has not seemed upon the whole to have been proportionate to the expense incurred. In seeking for an explanation of this disappointment, the Commission is inclined to think that the chief reason was that the attacks have in great part been isolated both in time and place, instead of combined and continuous, and guided by a single and clearly-defined policy."

Honorable Hugh O'Brien, who served as Mayor of the city from 1885 to 1888, enjoying the distinction of re-election for four successive terms, is responsible for a similar statement to the effect that during the previous years Boston had "expended millions of dollars for widening and extending streets that could have been saved if some systematic plan had been adopted."

The first practical step looking toward a solution of the problem was taken in the year 1891 through a bill providing for the appointment of a Board of Survey for the City of Boston with authority to devise a scheme of streets for the entire city, to be adopted as a basis for all future street improvements. The first conclusion of the Board as set forth in their report dated February 1, 1894, was that

"The City of Boston, perhaps more than any other city in the country, has suffered from the many evils attending the want of a comprehensive system of streets and the lack of suitable regulations governing the laying out of streets and ways."

The Board further declared

"The remedy . . . . consists in laying down a comprehensive system of streets covering the entire city, and taking into account not only present needs, but providing as far as may be for the growth and requirements of the future."

The next ten years, from 1892 to 1902, saw an expenditure of $9,259,978.65, bringing the total, for the most part exclusive of construction, to $46,169,719.62 in 80 years. Some of the more notable of the items represented in this larger amount include:

Washington Street	$2,907,707
Columbus Avenue	1,904,264
Atlantic Avenue	1,783,431
Hanover Street	1,694,700
Devonshire Street	1,512,079
Broadway Extension	1,402,508
Congress Street	1,366,530
Summer and Cove Streets	1,277,891
Federal Street	902,241
Commonwealth Avenue	781,240
Tremont Street	754,128
Water Street	662,213
Boylston Street	588,520
Beacon Street	561,329

From 1902 to December 31, 1929, the city has expended for land damages in connection with the laying out and widening of streets $23,-653,886.11, or an average of less than a million dollars a year. A substantial portion of this amount has been expended during the latter half of this period, including the widening of Stuart Street, for which $3,100,000 was authorized; Cambridge and Court Streets, $3,500,000; Tremont Street, $1,200,000; Kneeland Street, $1,-200,000; Dock Square, $2,250,000; and the Nashua Street Extension, $1,000,000.

The Boston Chamber of Commerce in a recent bulletin called attention to the fact that in the ten-year period from 1920 to 1929, inclusive, a total amount of $51,479,179 had been authorized by the city and state for expenditure upon major highway development in the City of Boston. Although certain of these are metropolitan projects to which the state and other cities and towns contribute a share, Boston is alone responsible to the extent of $46,183,177. While the total figure represents for the most part the amounts authorized, even though not actually expended up to the present time, it will be seen from earlier paragraphs that the city, since its incorporation in 1822, has actually spent for the laying out and widening of streets, generally exclusive of construction, a sum approximating seventy million dollars. Furthermore, this vast sum has been expended *without any definite program in mind.* Much of the work has been admirably done. All of it might have been accomplished to greater purpose if it had been accompanied by a comprehensive plan based upon present conditions and future requirements.

Nevertheless, Boston has every reason to be proud of its achievements and proud of the vision and the courage which prompted it from the very beginning to undertake projects which even today would be considered well-nigh impossible. In three short centuries, a splendid city has been achieved from a wilderness. Prosperity and happiness have taken the place of hardship and privation. Boston has grown great and regardless of the problems which may be encountered in the future, it is safe to say that they will never be more serious, particularly in relation to the physical plan of the City, than those which were met and overcome in the past. If the problems of the future are approached with a courage and a vision comparable to the loyalty, sacrifice, toil and devotion which characterized the earlier generations, combined with the experience and the knowledge of the present day, the future of Boston is assured.

VIII. APPENDICES

A. REPORT ON A FINANCIAL PLAN COVERING THE FIRST AND SECOND CONSTRUCTION PERIODS OF THE BOSTON THOROUGHFARE PLAN

Scope of this Report

The Thoroughfare Plan, as proposed by the City Planning Board, is divided into four construction periods. Based upon traffic needs, present and future, as developed by careful analyses, a length of from four to nine years has been recommended for each period. This report covers recommendations for financing the first and second periods with the minimum disturbance to the tax rate.

The first two periods only are covered because it is believed that changing conditions and costs make the recommendations for the last two periods somewhat tentative in character, so that they will probably have to be considerably revised in the light of future developments before the time comes to put them into effect. Therefore a financial plan for these periods at this time would be out of place, except that the need for the later program must be kept in mind and the financial plan for the first two periods so devised that it will not interfere with the later program. This has been done in the present instance.

The Construction Program Under Consideration

The construction program for the first two periods covers (with the exception of projects already authorized) projects whose estimated cost aggregates $47,248,000, of which $2,967,000 is for street surfacing, $34,696,000 for land damages, and the remainder for structures of various kinds. The details of these two construction periods are given in Table XXIII, page 148.

At first glance the estimated cost of $47,248,000 seems somewhat alarming even if spread over a period of ten years, but on consideration of past authorizations for similar purposes it presents a less alarming aspect. A careful study of authorizations for the past ten years shows that a little over $45,000,000 has been authorized for "Major Highway Improvements" during that period. This figure includes only such projects as can be clearly identified as properly belonging in the same class as those proposed in the new program. It includes, however, the sixteen millions authorized in 1929 for the East Boston Tunnel. The proposed ten-year program represents an increase over the rate of authorizations for similar purposes in the past ten years of about 5 per cent.

What is still more notable is that the proposed expenditures are based upon a carefully studied, coordinated program to meet the future needs of the city, rather than on a series of individual projects not so coordinated. This should lead to a much greater benefit to the City per dollar of the proposed expenditures than could be expected from the less well coordinated expenditures of the past.

Taking these facts into consideration, it is clear that the $47,248,000 aggregate for the next ten years is no more than the City will probably spend for such purposes during this period with or without a Thoroughfare Plan, if the future can be judged by the past.

Desirable Features of a Financial Plan

The plan for financing the proposed improvements should meet certain requirements if possible. These requirements are as follows:

1. Should provide sufficient funds as needed for efficiently carrying on the construction.
2. Should provide the necessary funds within the proposed construction period, if possible, without an undue increase in tax rate.
3. The term of the bonds should not exceed the probable life of the improvement for which they pay and should be no longer in any case than is necessary to finance without undue burden to the taxpayer.
4. The methods of retirement of the bonds should conform to the sound principles usually required by the General Court.
5. The financing of the first two periods should be so designed as not to interfere with the financing of later projects.

Assumptions and Method

For the purpose of determining the effect of any plan of financing the Thoroughfare Plan upon future taxes, the following plan was adopted:

1. It was assumed that the financing of the new plan would start in 1930.
2. All bonds issued to July 1, 1929, for similar purposes and still outstanding were listed and the debt service (principal and interest payments) for each year from 1930 on, was computed.
3. All bonds for similar purposes now authorized and unissued were assumed to be issued during the remainder of 1929 and during 1930. Their debt service was similarly computed.
4. The total debt service for these bonds for each year starting with 1930 were totaled and listed. The results will be found in the first column of figures in Table XXIV, page 148. This shows the burden of the present bonds upon the City funds.
5. It was assumed that the City could continue to pay the same amount of debt service for major highway bonds as is necessary for that purpose in 1930.
6. A study of the growth of taxable valuations for the past ten years, taking into consideration such changes in the statutes during that period as the new automobile excise law, led to estimating that the valuations would increase about 1.6 per cent of the 1929 valuation each year hereafter. This seems to be conservative. Without, therefore, increasing the levy for the debt service of major highway bonds over that of 1930, approximately $40,000 additional would be raised each year by an identical levy due to the increased valuations. These increments appear in the third column of Table XXIV.
7. In accordance with an act of the last General Court, automobiles are no longer taxed as is other personal property, but are now reached by the automobile excise tax. This new tax has not been in operation long enough to give definite information on the revenue that it will yield as compared with the previous personal property tax on automobiles but the new revenue will certainly be greatly in excess of the old. Some figures gathered by the Commonwealth indicate that the revenue will be about doubled. After careful consideration of such facts as are available, the writer estimates that there will be an increase of approximately $500,000 in Boston in 1929. It is further estimated that there will be an additional registration in Boston of about 8,000 cars in 1930; an average of 5,000 cars additional per year from 1930 to 1942 and 2,000 per year additional thereafter. Using the average yield per car as indicated by the figures to date an estimate was made of the additional revenue each year from this source. Under the new statute the City was allowed to deduct as a revenue from the amount to be raised by taxation in 1929 a sum equal to that secured from automobiles in 1928 by the personal property tax, so that the excess from the new tax does not affect the 1929 tax rate. As this additional revenue is raised from automobiles and automobiles make necessary the "Thoroughfare Plan" expenditures, it seems just and logical that the excess should be applied to this purpose.
8. In view of these considerations, it was assumed that each year an amount equal to that applied for the reduction of taxation in 1929 from the automobile excise tax be similarly applied thereafter and that the excess revenue from this source be segregated for the purpose of meeting the costs of the Thoroughfare Plan. Column four of Table XXIV shows these estimated amounts.
9. Evidently the City can continue to raise from taxation the amount necessary to cover the present debt service in 1930 (Column 1, Table XXIV) plus the annual increment due to increased valuations (Column 3, Table XXIV) plus the excess revenue from the automobile excise tax over the deduction from taxation made

in 1929 (Column 4, Table XXIV), without increasing the present tax for Major Highway purposes.

10. The debt service for bonds now issued or authorized decreases constantly as the debt is paid off. This leaves a constantly increasing amount between the amount needed for this purpose in 1930 and the amount needed in later years. These amounts are shown in Column 2, Table XXIV.
11. The sum of the amounts shown in Columns 2, 3 and 4 of Table XXIV represents the total that can be applied to debt service on new debt each year without an increase in the tax rate. These amounts are shown in the fifth column of Table XXIV.
12. As such a large proportion of the proposed expenditures are for land damages and most of the remainder for structures of very long life and in view of the fact that these improvements will appreciate in value to the community, instead of depreciating, it is recommended that the term of the bonds be fifty years.
13. Except in unusual instances the Commonwealth requires that bonds be straight serial bonds, *i. e.*, that the principal of the bonds be retired in approximately equal annual amounts beginning one year from the date of issue. This is a sound policy for this type of improvement bonds and it is assumed will be followed.
14. A study of the estimates led to rough approximations of how rapidly funds would be needed to carry on the work proposed.

Conclusions

As a result of these assumptions and the method followed, it is computed that the first two construction periods of the Thoroughfare Plan can be financed by issuing serial bonds bearing an average interest of 4 per cent, payable in fifty annual installments without increasing the tax rate at present levied for similar purposes, if issued in approximately the amounts shown in Table XXIV, Column 6. For example, in 1939, the last year of the second construction period, the debt charges due to all the new bonds will be $2,551,000 and the amount available for new debt charges will be $2,590,000 plus the balances from prior years, thus caring for all debt charges and leaving as a factor of safety a cumulative balance of $1,067,000.

Further tests show that this plan will not hamper the construction program for the third and fourth periods.

It should be noted that while the funds could be administered as assumed (*i. e.*, a fixed rate of levy based on the 1930 rate made and segregated for the purpose of major highway debt service, and the segregation of the excess of revenue from the automobile excise tax over that from the 1928 personal property tax on automobiles) and proof afforded that the tax levy would not have to be increased by reason of the new financing, nevertheless, exactly the same effect on the tax rate would result without any actual segregation.

Of course, no claim is made that the financing of this program will not affect taxes. If the expenditures were not made taxes would decrease. As an offset, however, such important improvements when made will undoubtedly benefit the community and result in increased property values which in turn will reduce the rate of taxation.

Attention is also called to the fact that in working out this plan major highway financing has been segregated from the financing of all other improvements, so that nothing here planned will decrease the proportionate amount available for other needed improvements without effect on the tax rate.

Additional Considerations

The above plan is based upon a general assumption that the entire improvements will be financed from general city revenue. On the basis of equity part of the burden should be otherwise borne and full consideration should be given to these factors and the taxpayer's share decreased accordingly.

Betterments

Many of the proposed improvements will confer special benefits upon certain real estate

and this property should be assessed betterments in proportion to the benefit received.

The Central Artery furnishes a special case of some interest. When the question of such a highway has been discussed it has been proposed that betterments be assessed on nearby property and that a large part of the cost be assessed against a special tax district, comprising that part of downtown Boston that will have its traffic congestion relieved by the new highway. Undoubtedly some adjacent property will be specially benefited but because of the peculiar character of the improvement such benefits are going to be very difficult to evaluate.

The downtown district will certainly be greatly benefited by the improvement and should probably in equity stand about one-half the cost. However this does not need a special tax district or a special tax to secure that result. A study of valuations shows that Ward 3 and the parts of Ward 5 probably benefited by this improvement, have almost exactly 50 per cent of the total valuation of the city and thus will pay 50 per cent of the cost of this improvement if it is financed from general taxes.

Of course, anything secured from special benefits will serve to decrease the burden on the general taxpayer by the amounts so secured.

Metropolitan Participation

Several of the improvements included in the Plan such as the North Shore Radial or the Roxbury Crosstown would seem to be properly a part of the Metropolitan system and should be treated as was the Southern Artery by the participation of the Commonwealth and perhaps some other cities and towns.

Land Damages

Land damages constitute the principal item in the estimated costs of putting the Thoroughfare Plan into effect. The estimated amount for this purpose in the first two construction periods is $34,696,000. With such a huge sum at stake it behooves the City to use all available machinery for protecting its interests. There has been much criticism regarding the use of the methods in the general statutes for taking land by eminent domain and full consideration should be given to the possibilities of the alternative method as contained in Chapter 380, Acts of 1929, in securing better protection of the City's interests.

One very serious point of controversy in land damage cases in Boston has been as to the value of the remainder of lots and parcels after the City had taken what it needed, and there is a general belief that damages so claimed have been greatly in excess of the real facts. Attention is directed to the fact that the Constitution of the Commonwealth (Chapter XXXIX, Amendments) allows, under specific authority of the Legislature, the right of excess condemnation, *i. e.*, the City could take by eminent domain, land *in excess* of what was actually needed for the proposed improvement. This would enable the City to take the entire lot and resell the part it did not need. It is believed that if the legislation authorizing the improvements here proposed should include the right of excess condemnation as an alternative to the other methods, that it would result in less extravagant damage claims and if such were introduced, would enable the City to protect itself by taking the entire parcel. Such authority was included in one act (Chapter 329, Acts of 1917) authorizing the construction of Stuart Street, but this particular act failed of acceptance by the City.

It is strongly urged that authority for the use of excess condemnation be secured in the case of the proposed Central Artery, as it is believed it will make large savings possible.

If excess property is secured by this means, it should properly be pledged for the payment of the bonds issued and should logically be administered and resold by the official body charged with the care and administration of assets pledged for the payment of the city debt, *i. e.*, the Sinking Fund Commission.

Respectfully submitted,

GAYLORD C. CUMMIN, C. E.,
Civic Consultant.

January 17, 1930.

(The above report was made available through the personal contribution of Mr. Sidney S. Conrad who served as a committee of one of the Planning Board to consider the financial problems.)

B. DIAGRAMS SHOWING TRAFFIC COUNTS GROUPED AT INTERSECTIONS

During the summer of 1927 traffic volume counts were made at 518 points within the City of Boston by the Mayor's Street Traffic Survey in cooperation with the Planning Board. These counts grouped in 265 diagrams are shown on pages 179–193. The counts were made over a a period of 6, 8 or 10 hours. Based on the ratio of 6 or 8-hour traffic to 10-hour traffic in similar locations, each count for a period of less than 10 hours was increased to a 10-hour basis for the purpose of the diagram.

Figure 95 shows the location and diagram number of the counts located in Boston Proper and Figure 96 those outside of Boston Proper.

The following is a list of the diagrams, giving the diagram number and the page on which each is shown:

LIST OF VOLUME COUNT DIAGRAMS

FIGURE 95.—KEY TO LOCATION OF VOLUME COUNT DIAGRAMS 1-110.
This map shows the location and diagram number of the counts located in Boston Proper.

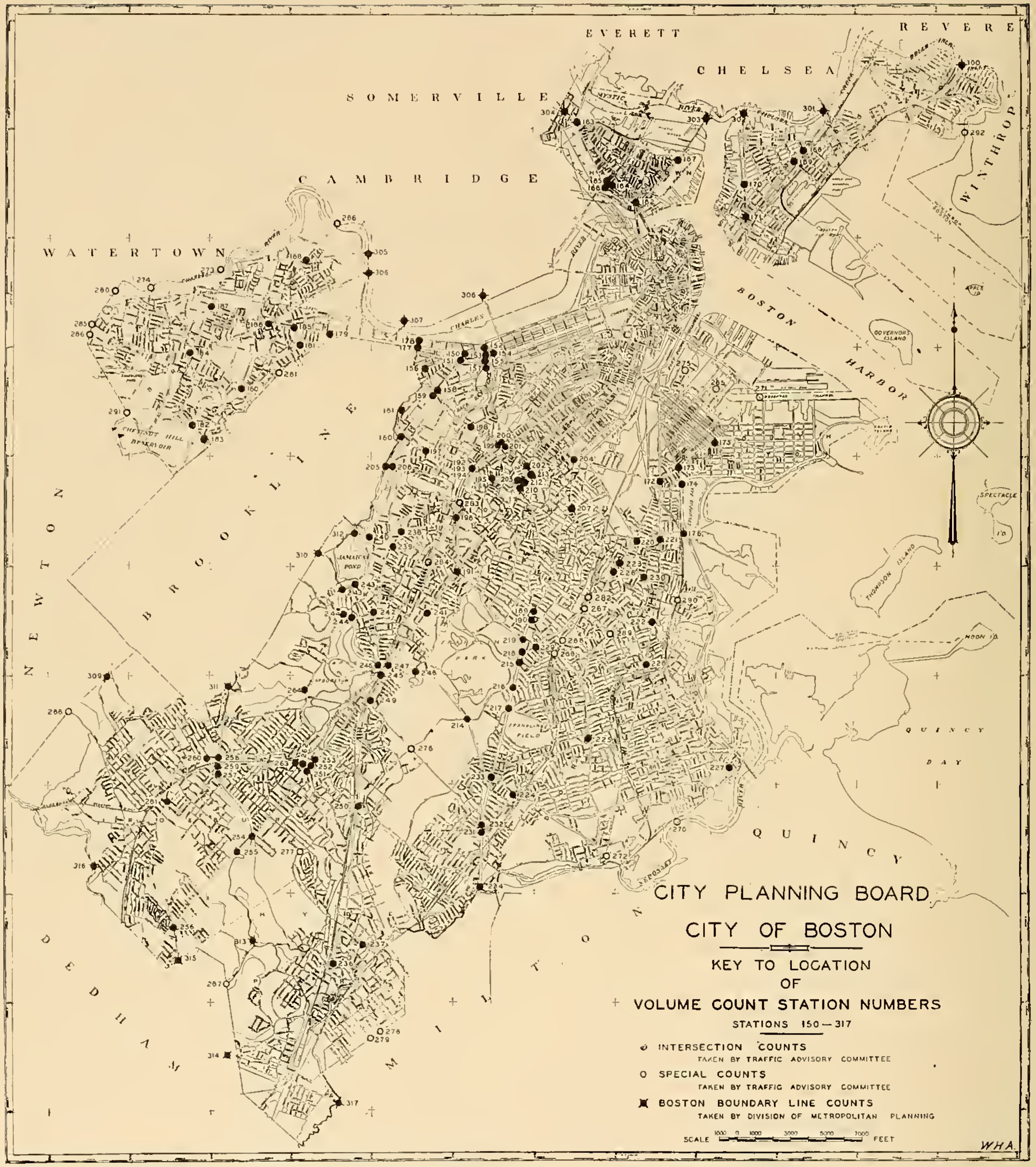
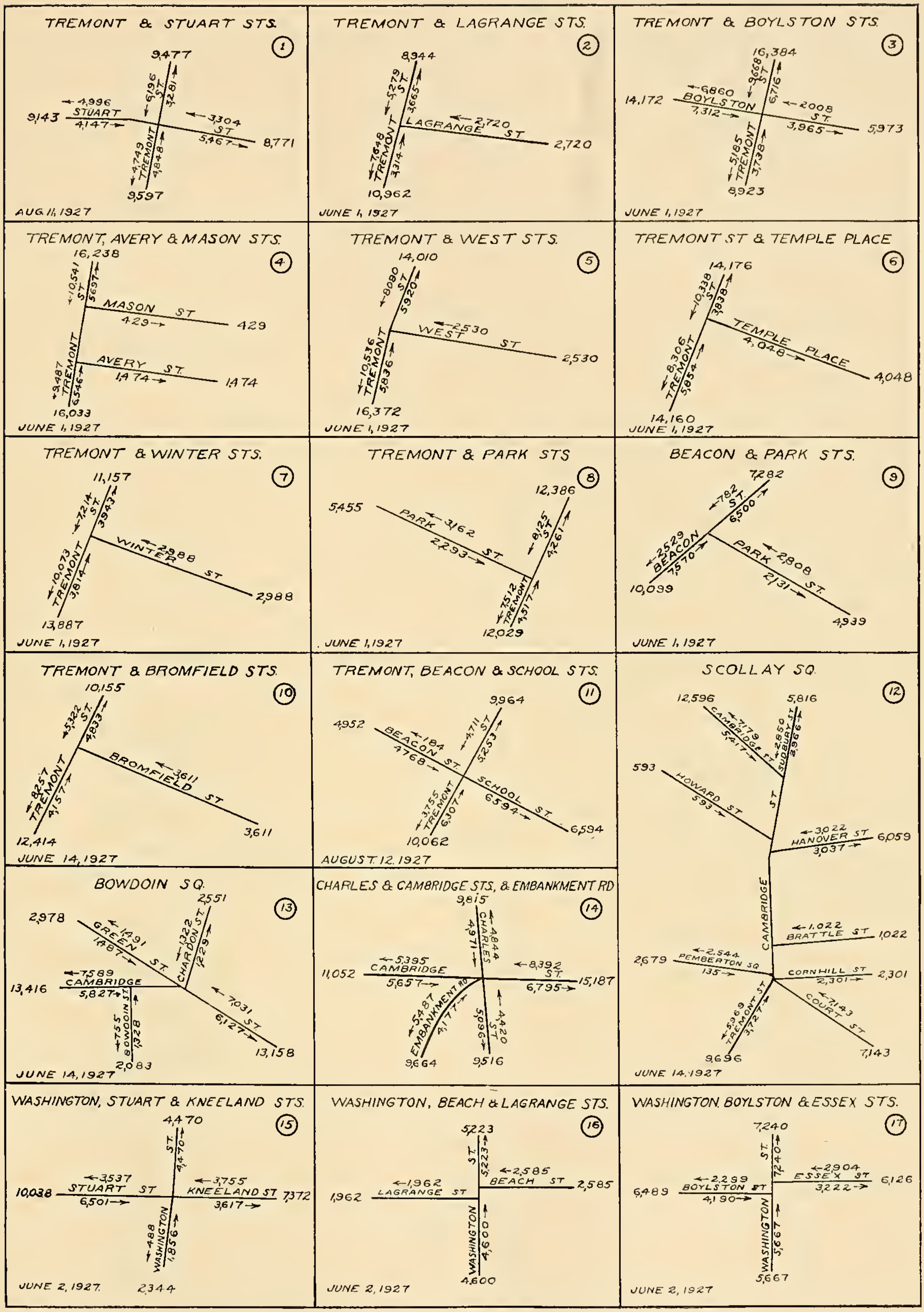
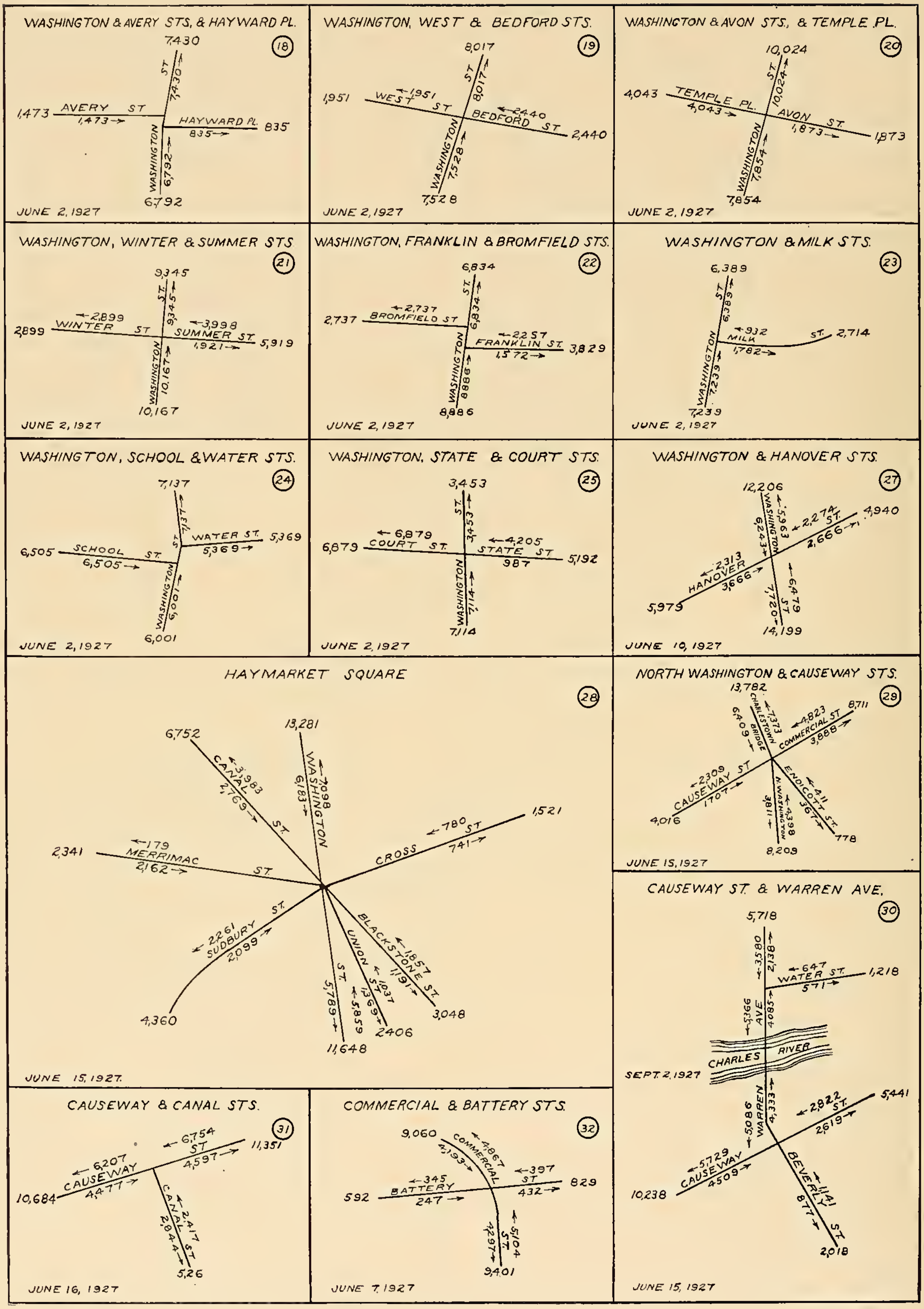
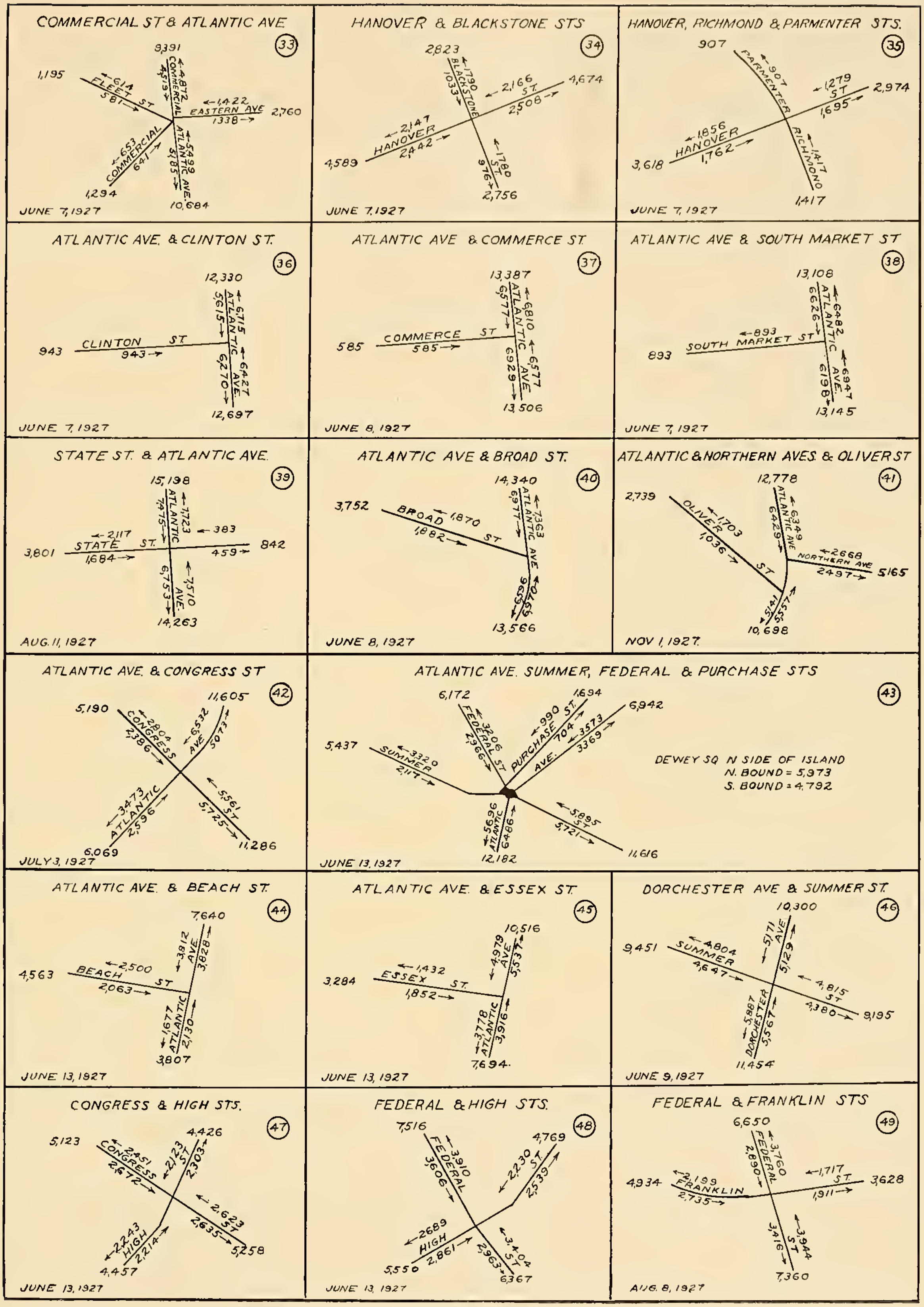
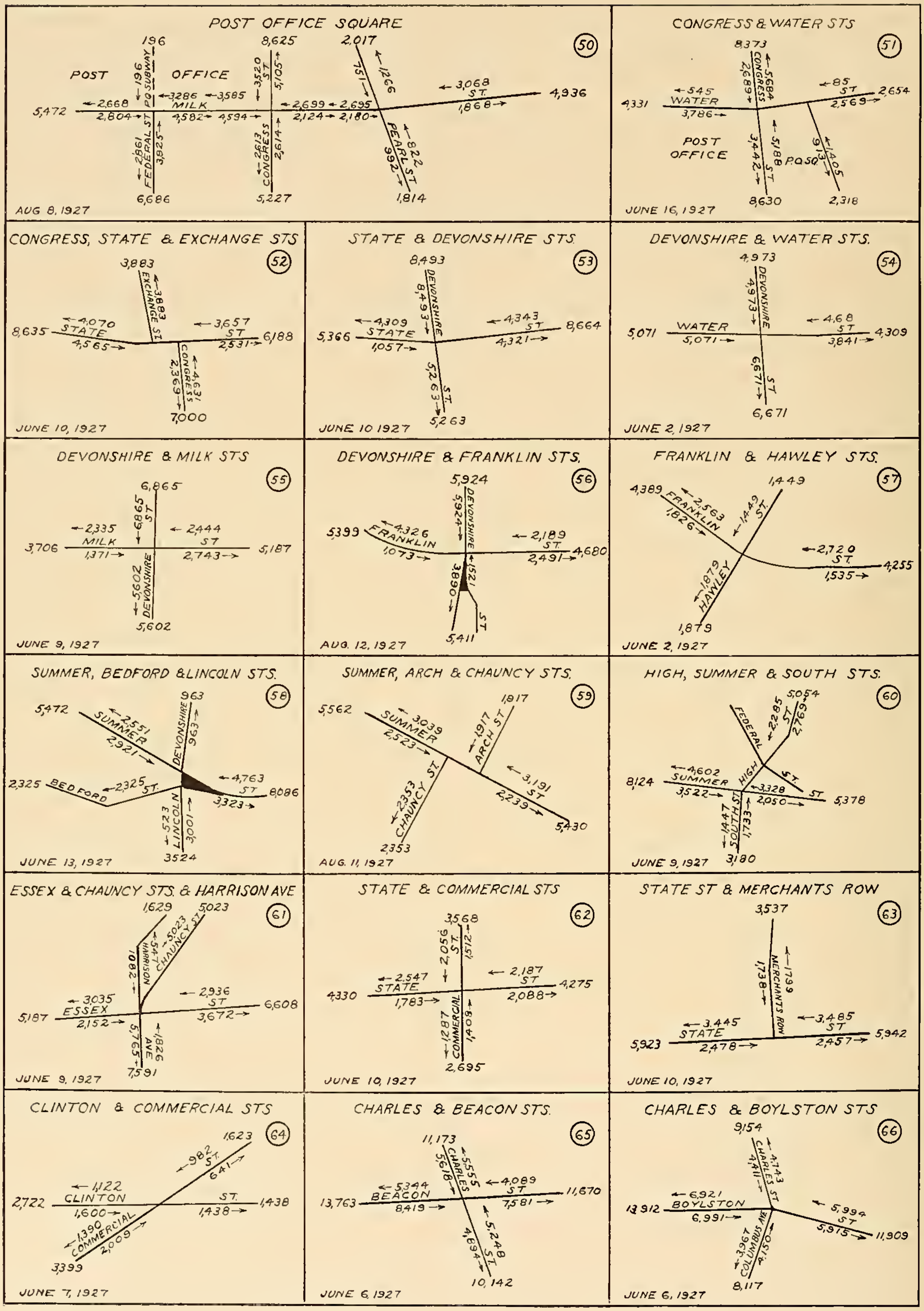


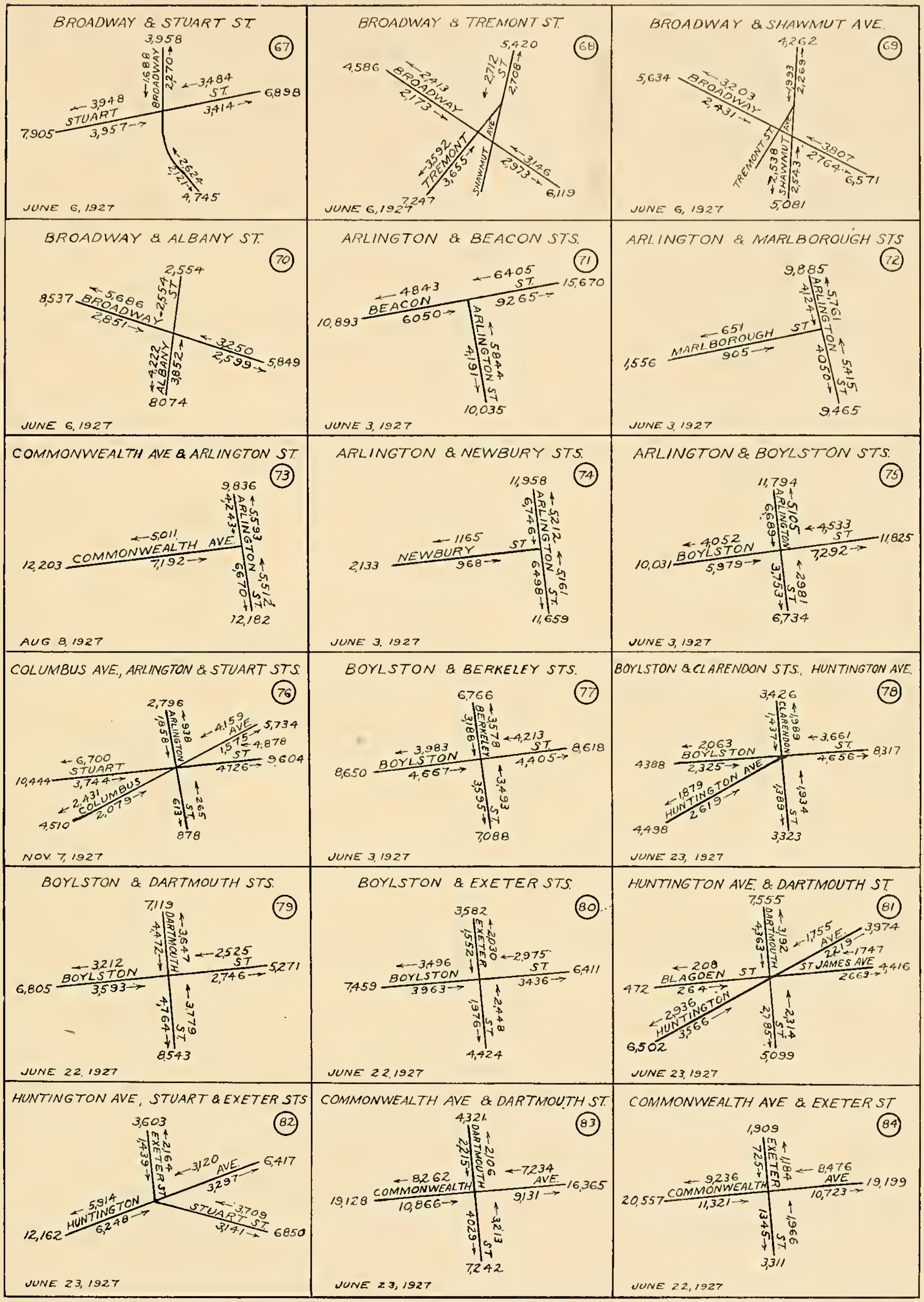
FIGURE 96.—KEY TO LOCATION OF VOLUME COUNT DIAGRAMS 150-317.
This map shows the location and diagram number of counts made outside of Boston Proper.

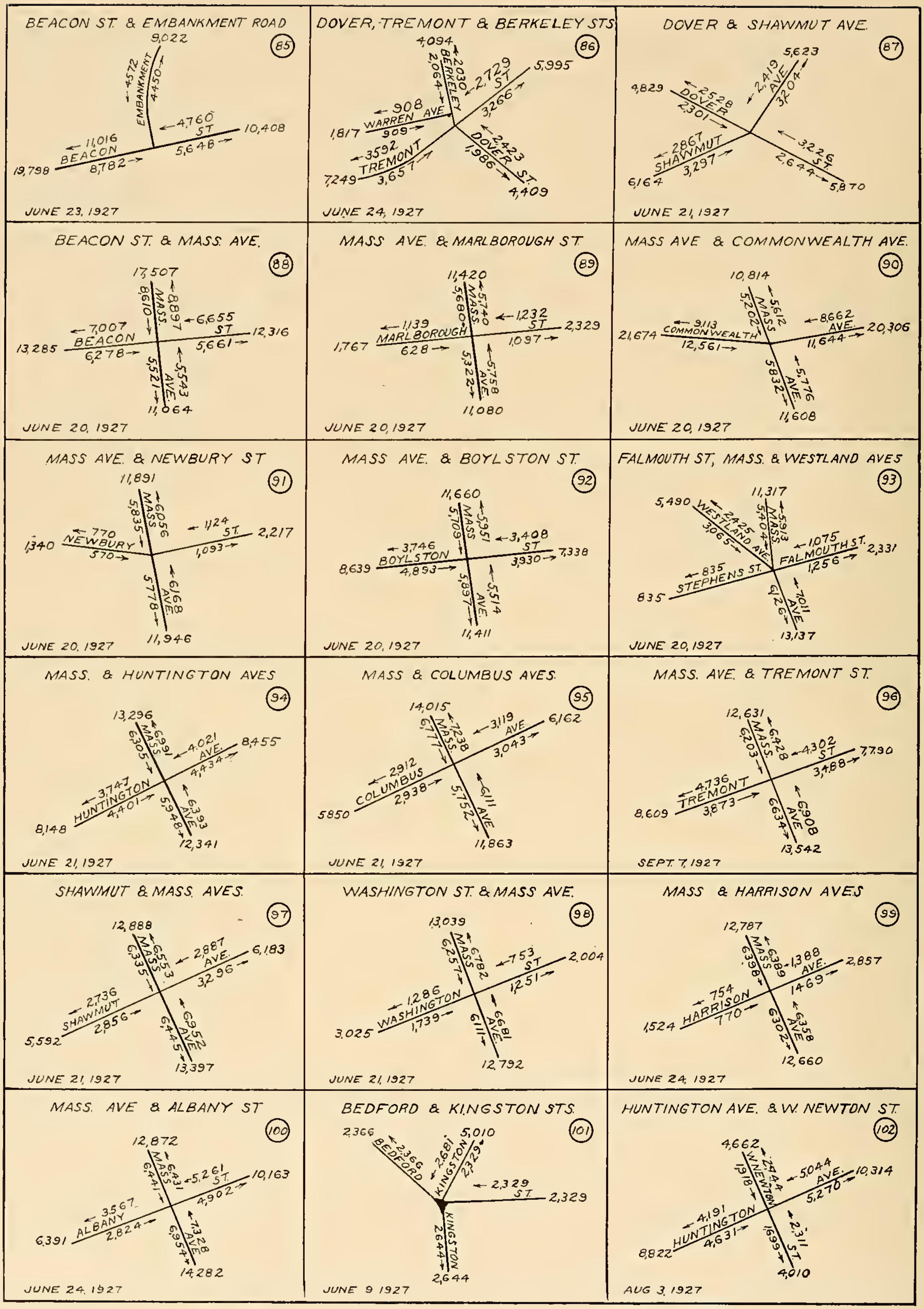

TREMONT & STUART STS.
AUG. 11, 1927
TREMONT & LAGRANGE STS.
JUNE 1, 1927
TREMONT & BOYLSTON STS.
JUNE 1, 1927
TREMONT, AVERY & MASON STS.
JUNE 1, 1927
TREMONT & WEST STS.
JUNE 1, 1927
TREMONT ST & TEMPLE PLACE
JUNE 1, 1927
TREMONT & WINTER STS.
JUNE 1, 1927
TREMONT & PARK STS
JUNE 1, 1927
BEACON & PARK STS.
JUNE 1, 1927
TREMONT & BROMFIELD STS.
JUNE 14, 1927
TREMONT, BEACON & SCHOOL STS.
AUGUST 12. 1927
SCOLLAY SQ.
JUNE 14, 1927
BOWDOIN SQ.
JUNE 14, 1927
CHARLES & CAMBRIDGE STS. & EMBANKMENT RD
WASHINGTON, STUART & KNEELAND STS.
JUNE 2, 1927
WASHINGTON, BEACH & LAGRANGE STS.
JUNE 2, 1927
WASHINGTON, BOYLSTON & ESSEX STS.
JUNE 2, 1927


WASHINGTON & AVERY STS. & HAYWARD PL. (18)
JUNE 2, 1927
WASHINGTON, WEST & BEDFORD STS. (19)
JUNE 2, 1927
WASHINGTON & AVON STS., & TEMPLE PL. (20)
JUNE 2, 1927
WASHINGTON, WINTER & SUMMER STS (21)
JUNE 2, 1927
WASHINGTON, FRANKLIN & BROMFIELD STS. (22)
JUNE 2, 1927
WASHINGTON & MILK STS. (23)
JUNE 2, 1927
WASHINGTON, SCHOOL & WATER STS. (24)
JUNE 2, 1927
WASHINGTON, STATE & COURT STS. (25)
JUNE 2, 1927
WASHINGTON & HANOVER STS. (27)
JUNE 10, 1927
HAYMARKET SQUARE (28)
JUNE 15, 1927.
NORTH WASHINGTON & CAUSEWAY STS. (29)
JUNE 15, 1927
CAUSEWAY ST & WARREN AVE. (30)
CHARLES RIVER
SEPT. 2, 1927
JUNE 15, 1927
CAUSEWAY & CANAL STS. (31)
JUNE 16, 1927
COMMERCIAL & BATTERY STS. (32)
JUNE 7, 1927

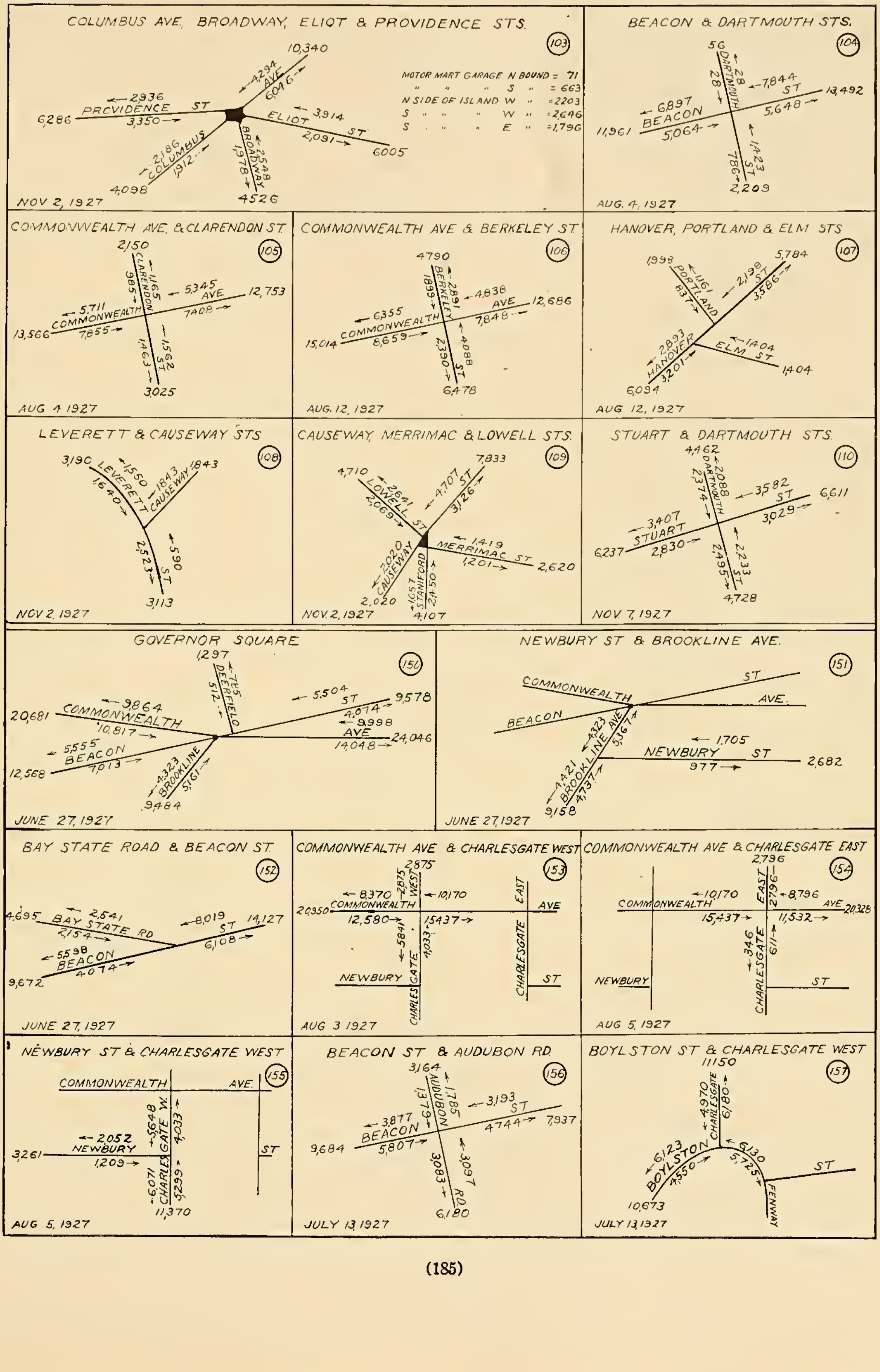

COMMERCIAL ST & ATLANTIC AVE
33
JUNE 7, 1927
HANOVER & BLACKSTONE STS
34
JUNE 7, 1927
HANOVER, RICHMOND & PARMENTER STS.
35
JUNE 7, 1927
ATLANTIC AVE. & CLINTON ST.
36
JUNE 7, 1927
ATLANTIC AVE & COMMERCE ST
37
JUNE 8, 1927
ATLANTIC AVE & SOUTH MARKET ST
38
JUNE 7, 1927
STATE ST. & ATLANTIC AVE.
39
AUG. 11, 1927
ATLANTIC AVE & BROAD ST.
40
JUNE 8, 1927
ATLANTIC & NORTHERN AVES. & OLIVER ST
41
NOV 1, 1927
ATLANTIC AVE. & CONGRESS ST
42
JULY 3, 1927
ATLANTIC AVE. SUMMER, FEDERAL & PURCHASE STS
43
DEWEY SQ N SIDE OF ISLAND
N. BOUND = 5,973
S. BOUND = 4,792
JUNE 13, 1927
ATLANTIC AVE. & BEACH ST.
44
JUNE 13, 1927
ATLANTIC AVE. & ESSEX ST.
45
JUNE 13, 1927
DORCHESTER AVE & SUMMER ST.
46
JUNE 9, 1927
CONGRESS & HIGH STS.
47
JUNE 13, 1927
FEDERAL & HIGH STS.
48
JUNE 13, 1927
FEDERAL & FRANKLIN STS
49
AUG. 8, 1927

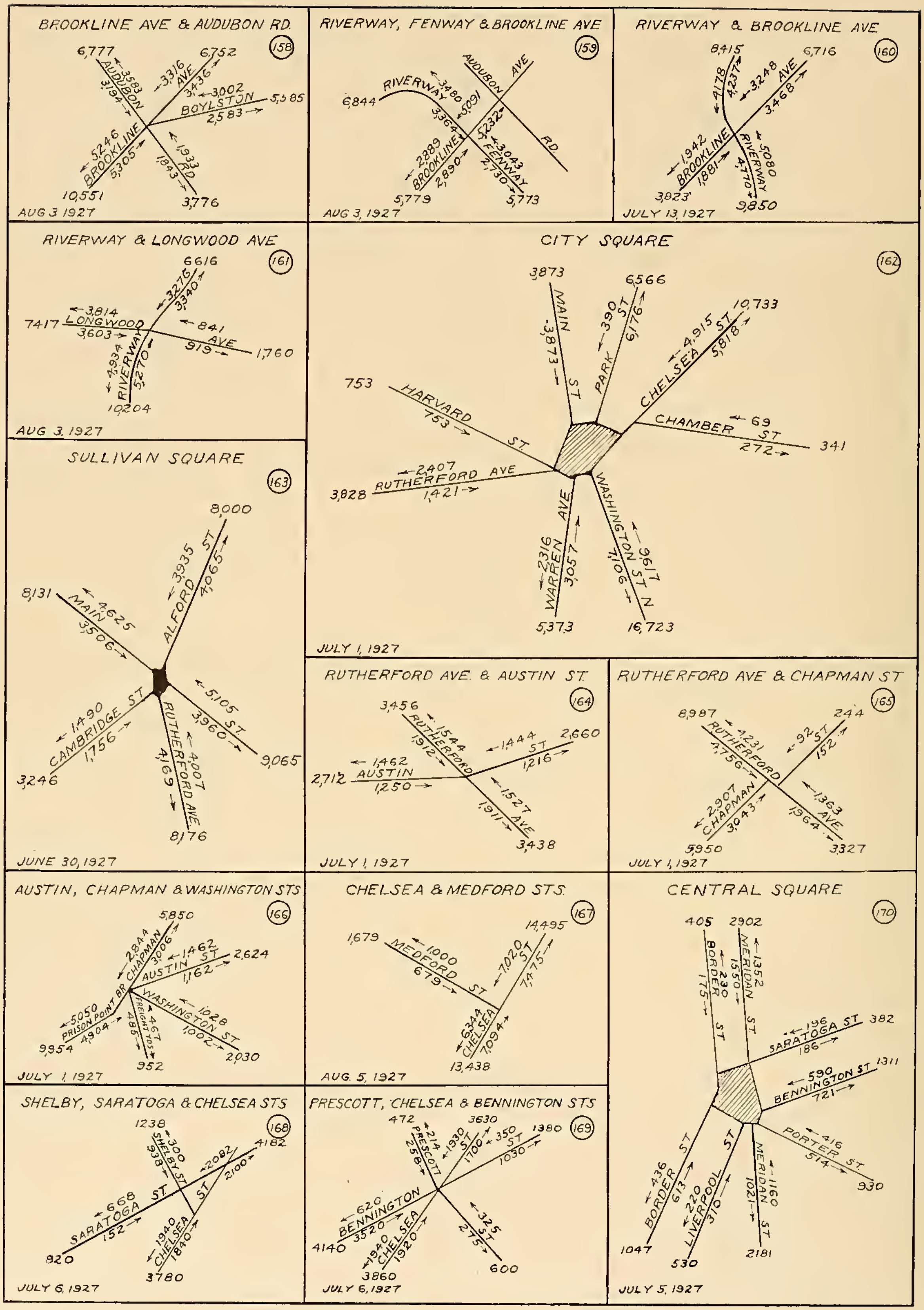

POST OFFICE SQUARE
50
AUG 8, 1927
CONGRESS & WATER STS
51
JUNE 16, 1927
CONGRESS, STATE & EXCHANGE STS
52
JUNE 10, 1927
STATE & DEVONSHIRE STS
53
JUNE 10 1927
DEVONSHIRE & WATER STS.
54
JUNE 2, 1927
DEVONSHIRE & MILK STS
55
JUNE 9, 1927
DEVONSHIRE & FRANKLIN STS.
56
AUG. 12, 1927
FRANKLIN & HAWLEY STS.
57
JUNE 2, 1927
SUMMER, BEDFORD & LINCOLN STS.
58
JUNE 13, 1927
SUMMER, ARCH & CHAUNCY STS.
59
AUG. 11, 1927
HIGH, SUMMER & SOUTH STS.
60
JUNE 9, 1927
ESSEX & CHAUNCY STS. & HARRISON AVE
61
JUNE 9, 1927
STATE & COMMERCIAL STS
62
JUNE 10, 1927
STATE ST & MERCHANTS ROW
63
JUNE 10, 1927
CLINTON & COMMERCIAL STS
64
JUNE 7, 1927
CHARLES & BEACON STS.
65
JUNE 6, 1927
CHARLES & BOYLSTON STS
66
JUNE 6, 1927


BROADWAY & STUART ST.
67
3,958
1,688
2,270
BROADWAY
3,484
ST.
6,898
3,948
STUART
3,414
7,905
3,957
2,624
2,121
4,745
JUNE 6, 1927
BROADWAY & TREMONT ST.
68
5,420
4,586
2,413
BROADWAY
2,712
ST
2,708
2,173
AVE
3,592
TREMONT
3,655
SHAWMUT
3,146
2,973
6,119
7,247
JUNE 6, 1927
BROADWAY & SHAWMUT AVE.
69
4,262
5,634
3,203
BROADWAY
1,993
2,269
2,431
AVE
TREMONT ST.
SHAWMUT
3,807
2,764
6,571
2,538
2,543
5,081
JUNE 6, 1927
BROADWAY & ALBANY ST.
70
2,554
8,537
5,686
BROADWAY
2,554
ST
2,851
3,250
2,599
5,849
4,222
ALBANY
3,852
8074
JUNE 6, 1927
ARLINGTON & BEACON STS.
71
6405
ST.
15,670
4843
BEACON
9265
10,893
6050
ARLINGTON ST
5844
4,191
10,035
JUNE 3, 1927
ARLINGTON & MARLBOROUGH STS
72
9,885
ARLINGTON
4,124
5761
651
MARLBOROUGH
ST
1,556
905
4050
5415
ST
9,465
JUNE 3, 1927
COMMONWEALTH AVE & ARLINGTON ST.
73
9,836
ARLINGTON
4,243
5593
5,011
COMMONWEALTH AVE.
12,203
7,192
6670
5512
ST
12,182
AUG 8, 1927
ARLINGTON & NEWBURY STS.
74
11,958
ARLINGTON
6,746
5212
1165
NEWBURY
ST
2,133
968
6498
5161
ST.
11,659
JUNE 3, 1927
ARLINGTON & BOYLSTON STS.
75
11,794
ARLINGTON
6,689
5105
4,533
4,052
ST
11,825
BOYLSTON
7,292
10,031
5,979
3,753
2981
ST
6,734
JUNE 3, 1927
COLUMBUS AVE., ARLINGTON & STUART STS.
76
2,796
1,858
ARLINGTON
938
4,159
AVE
5,734
1,575
4,878
ST
9,604
6,700
STUART
4726
10,444
3,744
2,431
COLUMBUS
2,079
265
ST
613
4,510
878
NOV. 7, 1927
BOYLSTON & BERKELEY STS.
77
6,766
3,188
BERKELEY
3,578
4,213
3,983
ST.
8,618
BOYLSTON
4,405
8,650
4,667
3,595
3,493
ST.
7,088
JUNE 3, 1927
BOYLSTON & CLARENDON STS., HUNTINGTON AVE.
78
3,426
1,437
CLARENDON
1,989
3,661
2063
ST
BOYLSTON
8317
4388
2,325
4,656
AVE
1879
HUNTINGTON
2,619
1,389
1,934
ST
4,498
3,323
JUNE 23, 1927
BOYLSTON & DARTMOUTH STS.
79
7,119
4,472
DARTMOUTH
3,647
2,525
3,212
ST
5,271
BOYLSTON
2,746
6,805
3,593
4,764
3,779
ST.
8,543
JUNE 22, 1927
BOYLSTON & EXETER STS.
80
3,582
1,552
EXETER
2,030
2,975
3,496
ST.
6,411
BOYLSTON
3436
7,459
3963
1,976
2,448
ST
4,424
JUNE 22, 1927
HUNTINGTON AVE. & DARTMOUTH ST.
81
7,555
4,363
DARTMOUTH
3,192
1,755
AVE.
3,974
2,219
1747
208
ST JAMES AVE
4,416
BLAGOEN ST
2669
472
264
2,936
HUNTINGTON
3,566
2,785
2,314
ST
6,502
5,099
JUNE 23, 1927
HUNTINGTON AVE, STUART & EXETER STS
82
3,603
1,439
EXETER ST
2,164
3,120
AVE.
6,417
3,297
5,914
HUNTINGTON
3,709
STUART ST
12,162
6,248
3,141
6850
JUNE 23, 1927
COMMONWEALTH AVE & DARTMOUTH ST.
83
4,321
2,215
DARTMOUTH
2,106
7,234
8262
AVE.
16,365
COMMONWEALTH
19,128
10,866
9,131
4029
3,213
ST
7,242
JUNE 23, 1927
COMMONWEALTH AVE & EXETER ST
84
1,909
725
EXETER
1184
8,476
9,236
AVE
19,199
COMMONWEALTH
20,557
11,321
10,723
1345
1,966
ST.
3,311
JUNE 22, 1927

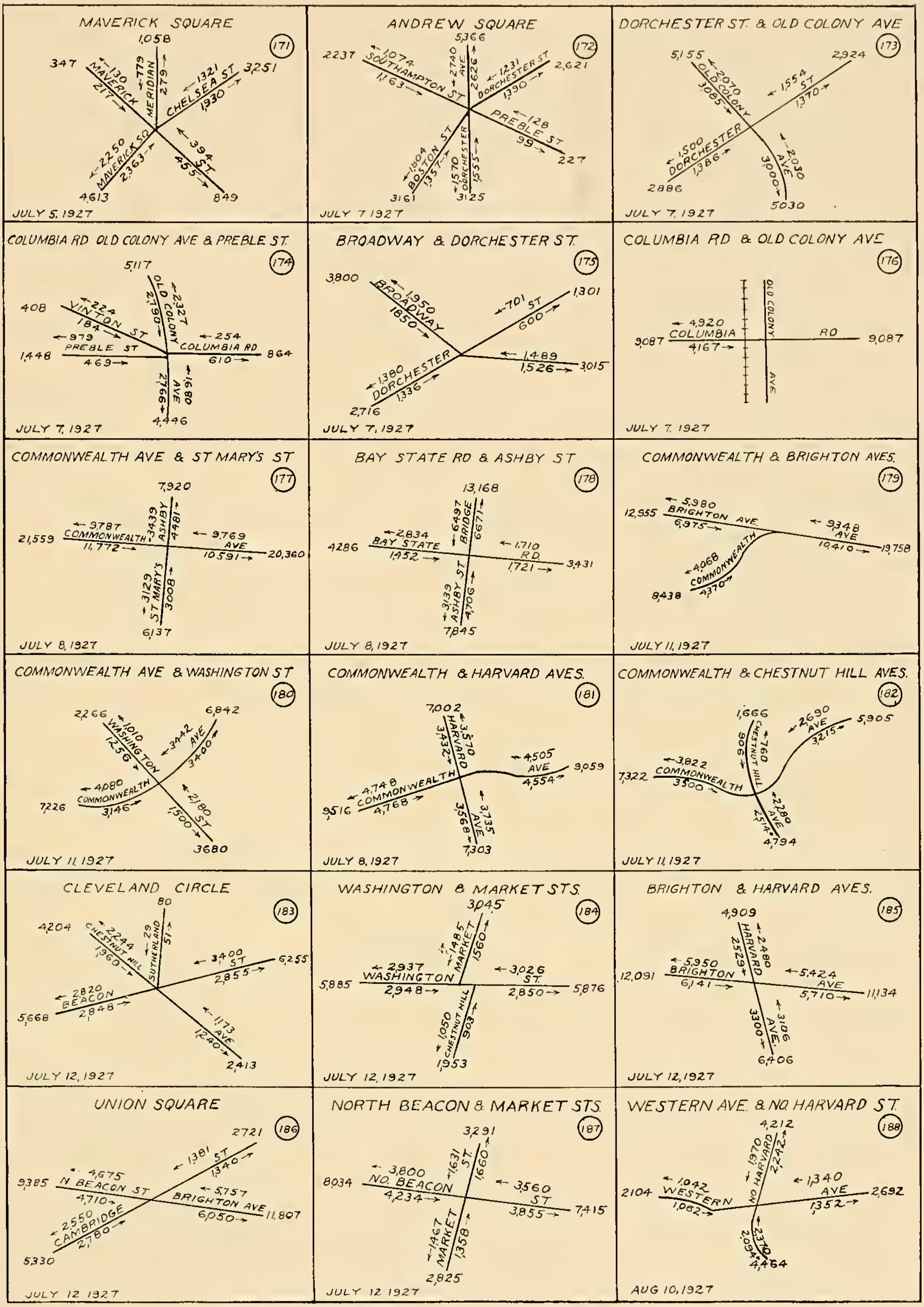


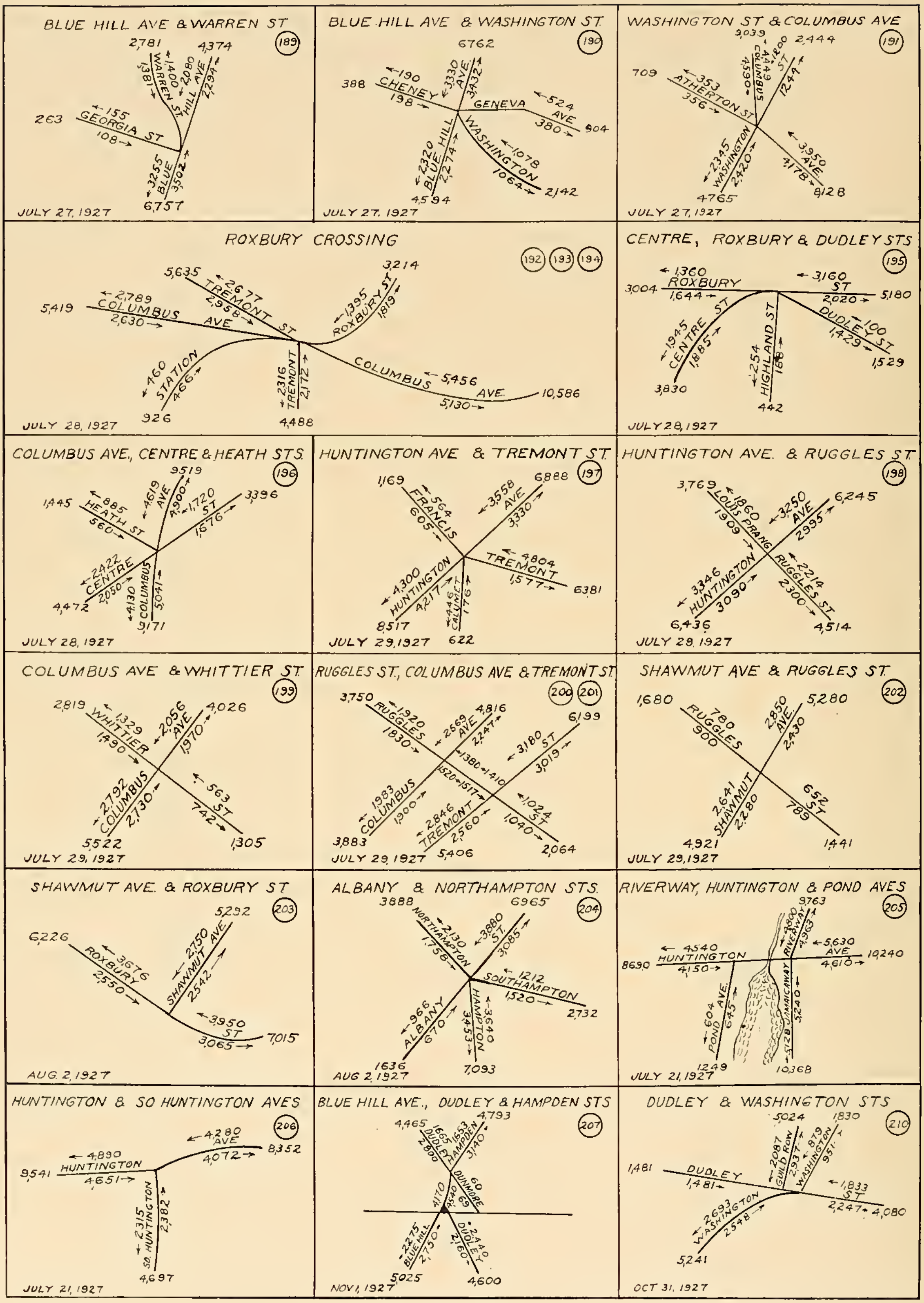
BEACON ST. & EMBANKMENT ROAD
85
9,022
4572
4450
EMBANKMENT
4,760
ST
10,408
11,016
BEACON
5,648
19,798
8,782
JUNE 23, 1927
DOVER, TREMONT & BERKELEY STS.
86
4,094
2030
2064
BERKELEY
2,729
ST
5,995
908
WARREN AVE
909
1,817
3,266
3592
TREMONT
2423
DOVER
1,986
ST.
7,249
3,657
4,409
JUNE 24, 1927
DOVER & SHAWMUT AVE.
87
5,623
2,419
AVE
3204
4,829
2528
DOVER
2,301
2867
SHAWMUT
3,297
3,226
ST.
2,644
6,164
5,870
JUNE 21, 1927
BEACON ST. & MASS. AVE.
88
17,507
8610
MASS.
8,897
6,655
7,007
BEACON
ST
12,316
13,285
6,278
5,661
5,521
AVE.
5,543
11,064
JUNE 20, 1927
MASS. AVE. & MARLBOROUGH ST.
89
11,420
5,680
MASS.
5,740
1,232
1,139
MARLBOROUGH
ST
2,329
1,767
628
1,097
5,322
AVE.
5,758
11,080
JUNE 20, 1927
MASS AVE. & COMMONWEALTH AVE.
90
10,814
5,202
MASS
5,612
8,662
9,113
COMMONWEALTH
AVE.
20,306
21,674
12,561
11,644
5832
AVE.
5,776
11,608
JUNE 20, 1927
MASS AVE. & NEWBURY ST.
91
11,891
5,835
MASS
6056
1,124
770
NEWBURY
ST
2,217
1,340
570
1,093
5778
AVE.
6168
11,946
JUNE 20, 1927
MASS. AVE. & BOYLSTON ST.
92
11,660
5,709
MASS
5,951
3,408
3,746
BOYLSTON
ST
7,338
8,639
4,893
3,930
5,897
AVE.
5,514
11,411
JUNE 20, 1927
FALMOUTH ST., MASS. & WESTLAND AVES.
93
11,317
5,490
2,425
WESTLAND AVE.
3,065
5,404
MASS
5,913
1,075
FALMOUTH ST.
2,331
835
STEPHENS ST.
1,256
835
6126
AVE
7011
13,137
JUNE 20, 1927
MASS. & HUNTINGTON AVES.
94
13,296
6305
MASS
6,991
4,021
AVE.
8,455
4,434
3,747
HUNTINGTON
4,401
5,948
AVE
6,393
8,148
12,341
JUNE 21, 1927
MASS. & COLUMBUS AVES.
95
14,015
6,777
MASS.
7,238
3,119
AVE
6,162
3,043
2912
COLUMBUS
2,938
5,752
AVE
6111
5850
11,863
JUNE 21, 1927
MASS. AVE. & TREMONT ST.
96
12,631
6,203
MASS.
6,428
4,302
ST
7,790
3,488
4,736
TREMONT
3,873
6634
AVE
6,908
8,609
13,542
SEPT. 7, 1927
SHAWMUT & MASS. AVES.
97
12,888
6,335
MASS
6,553
2,887
AVE.
6,183
3,296
2,736
SHAWMUT
2,856
6,445
AVE
6,952
5,592
13,397
JUNE 21, 1927
WASHINGTON ST. & MASS. AVE.
98
13,039
6,257
MASS
6,782
753
ST
2,004
1,251
1,286
WASHINGTON
1,739
6111
AVE.
6681
3,025
12,792
JUNE 21, 1927
MASS & HARRISON AVES.
99
12,787
6,398
MASS
6,389
1,388
AVE.
2,857
1469
754
HARRISON
770
6302
AVE
6,358
1,524
12,660
JUNE 24, 1927
MASS. AVE & ALBANY ST.
100
12,872
6,441
MASS
6,431
5,261
ST.
10,163
4,902
3,567
ALBANY
2,824
6,954
AVE
7,328
6,391
14,282
JUNE 24, 1927
BEDFORD & KINGSTON STS.
101
2,366
2,366
BEDFORD
2,681
KINGSTON
5,010
2,329
2,329
ST
2,329
KINGSTON
2644
2,644
JUNE 9, 1927
HUNTINGTON AVE. & W. NEWTON ST.
102
4,662
1918
W. NEWTON
2,744
5044
AVE.
10,314
5,270
4,191
HUNTINGTON
4,631
1,699
ST
2,311
8,822
4,010
AUG 3, 1927

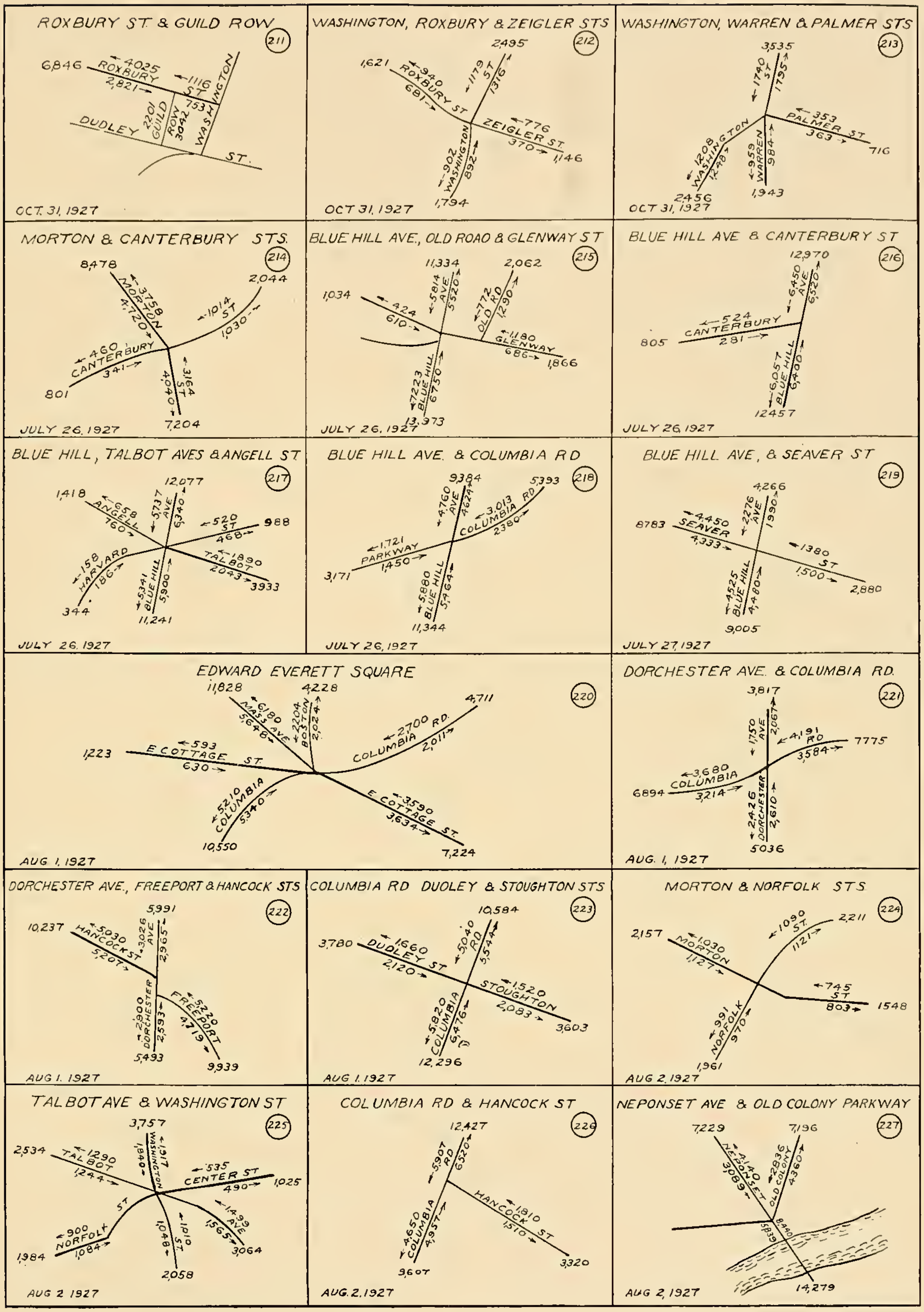

COLUMBUS AVE. BROADWAY, ELIOT & PROVIDENCE STS.
103
MOTOR MART GARAGE N BOUND = 71
" " " S " = 663
N SIDE OF ISLAND W " =2203
S " " " W " =2646
S " " " E " =1796
PROVIDENCE ST
COLUMBUS AVE
ELIOT ST
BROADWAY
NOV 2, 1927
BEACON & DARTMOUTH STS.
104
BEACON ST
DARTMOUTH ST
AUG. 4, 1927
COMMONWEALTH AVE. & CLARENDON ST.
105
COMMONWEALTH AVE
CLARENDON ST
AUG 4 1927
COMMONWEALTH AVE & BERKELEY ST.
106
COMMONWEALTH AVE
BERKELEY ST
AUG. 12, 1927
HANOVER, PORTLAND & ELM STS
107
PORTLAND ST
HANOVER
ELM ST
AUG 12, 1927
LEVERETT & CAUSEWAY STS
108
LEVERETT ST
CAUSEWAY
NOV 2, 1927
CAUSEWAY, MERRIMAC & LOWELL STS.
109
LOWELL ST
MERRIMAC ST
CAUSEWAY
STANIFORD
NOV. 2, 1927
STUART & DARTMOUTH STS.
110
STUART ST
DARTMOUTH ST
NOV. 7, 1927
GOVERNOR SQUARE
150
DEERFIELD
COMMONWEALTH AVE
BEACON
BROOKLINE
JUNE 27, 1927
NEWBURY ST & BROOKLINE AVE.
151
COMMONWEALTH AVE.
BEACON
BROOKLINE AVE
NEWBURY ST
JUNE 27, 1927
BAY STATE ROAD & BEACON ST.
152
BAY STATE RD
BEACON ST
JUNE 27, 1927
COMMONWEALTH AVE & CHARLESGATE WEST
153
COMMONWEALTH AVE
WEST
EAST
NEWBURY ST
CHARLESGATE
AUG 3 1927
COMMONWEALTH AVE & CHARLESGATE EAST
154
COMMONWEALTH AVE
EAST
NEWBURY ST
CHARLESGATE
AUG 5, 1927
NEWBURY ST & CHARLESGATE WEST
155
COMMONWEALTH AVE.
NEWBURY ST
CHARLESGATE W.
AUG 5, 1927
BEACON ST & AUDUBON RD.
156
AUDUBON RD.
BEACON ST
JULY 13 1927
BOYLSTON ST & CHARLESGATE WEST
157
CHARLESGATE
BOYLSTON ST
FENWAY
JULY 13 1927

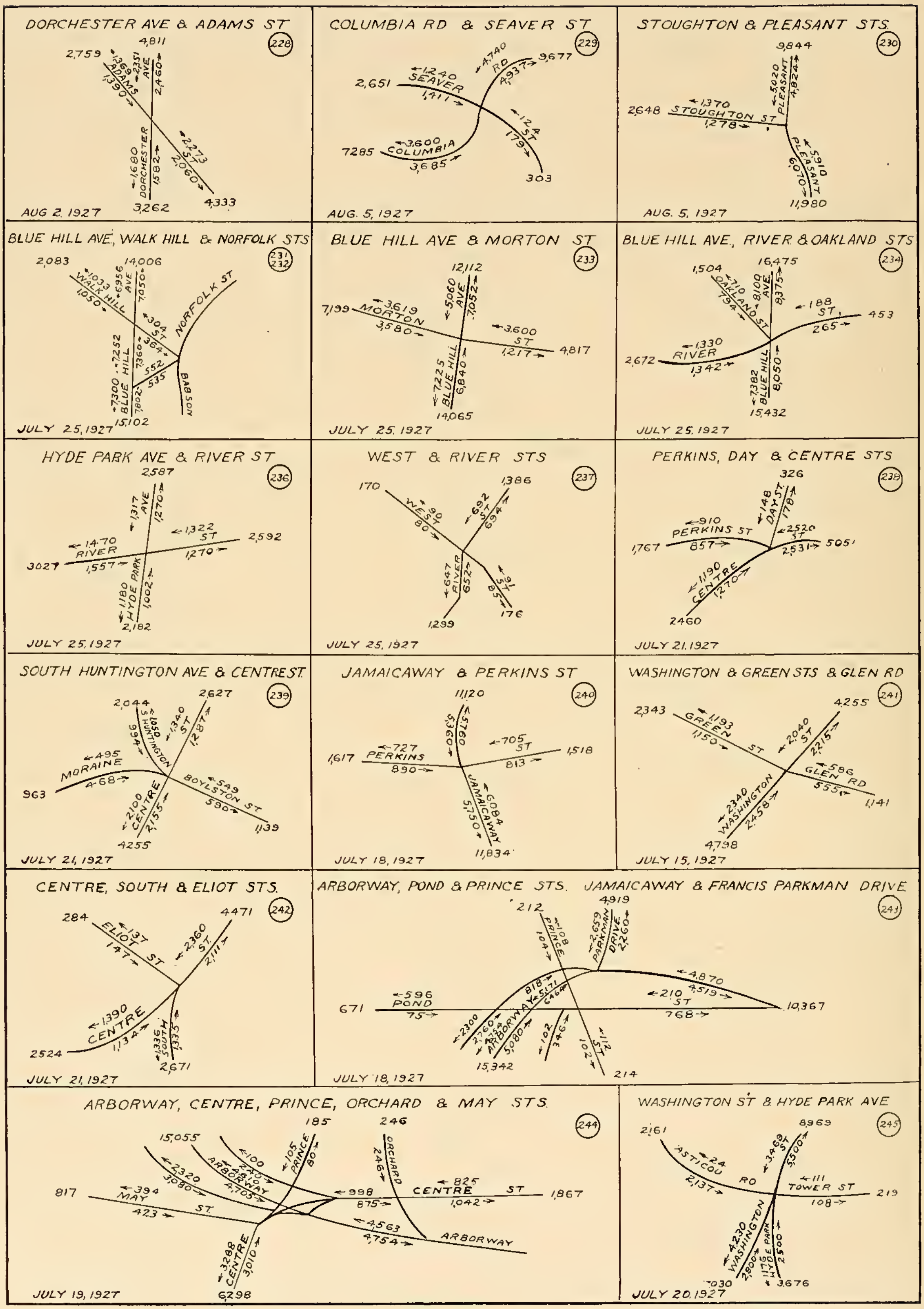


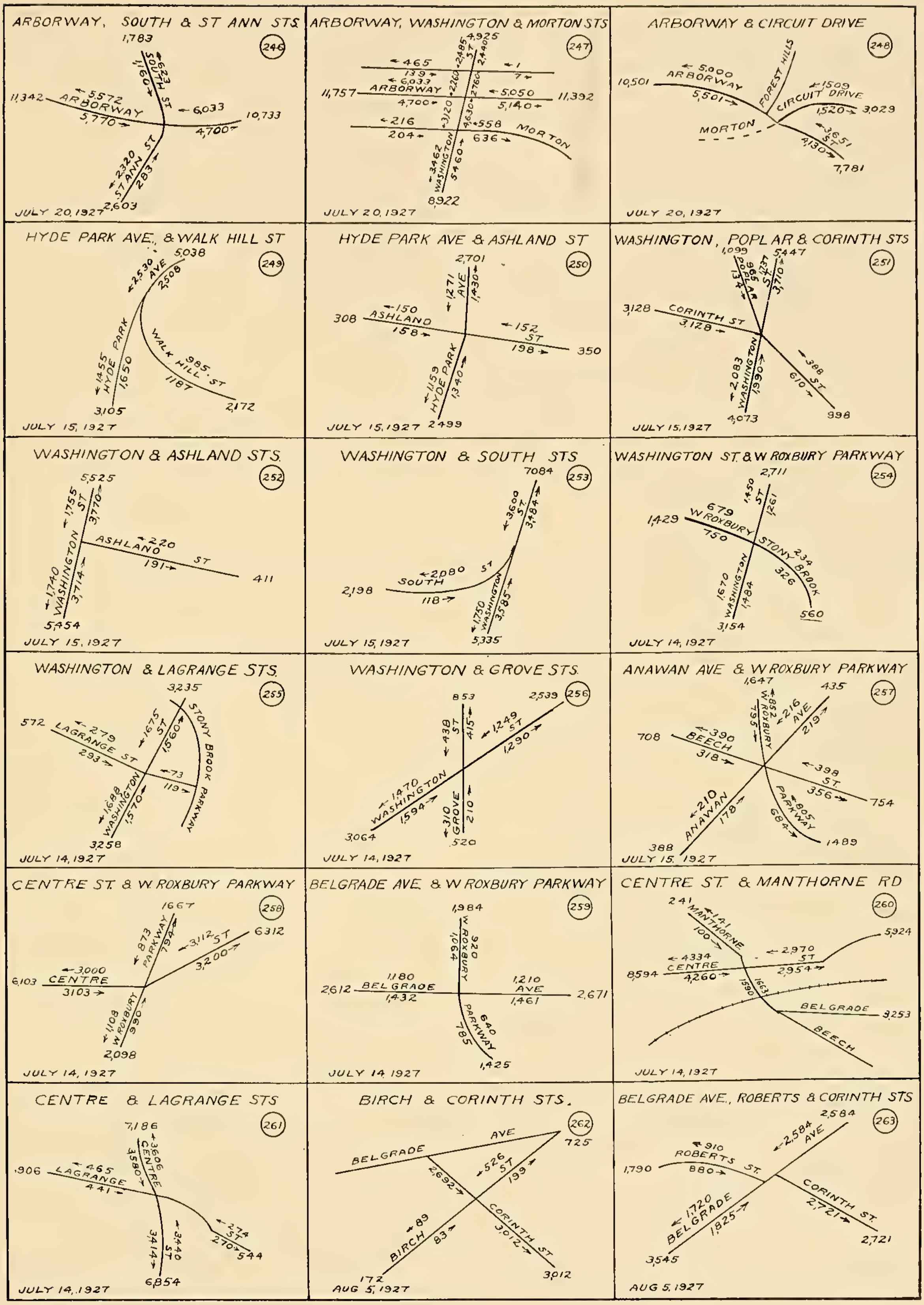
BROOKLINE AVE & AUDUBON RD.
158
6,777
3,583
3,194
AUDUBON
3,316
3,436
AVE
6,752
3,002
BOYLSTON
5,585
2,583
5,246
BROOKLINE
5,305
1,933
1,843
RD
10,551
3,776
AUG 3 1927
RIVERWAY, FENWAY & BROOKLINE AVE
159
AUDUBON
AVE
RIVERWAY
3,480
6,844
5,091
3,364
5,232
2,889
BROOKLINE
2,890
3,043
FENWAY
2,730
RD
5,779
5,773
AUG 3, 1927
RIVERWAY & BROOKLINE AVE
160
8,415
6,716
4,178
4,237
3,248
AVE
3,468
1,942
BROOKLINE
1,881
RIVERWAY
5,080
4,770
3,823
9,850
JULY 13, 1927
RIVERWAY & LONGWOOD AVE
161
6616
3,276
3,340
3,814
7417
LONGWOOD
3,603
841
AVE
919
1,760
4,934
RIVERWAY
5,270
10,204
AUG 3, 1927
CITY SQUARE
162
3873
MAIN
ST
3,873
6,566
390
ST
6,176
PARK
10,733
4,915
ST
CHELSEA
5,818
753
HARVARD
753
ST
CHAMBER
69
ST
272
341
2,407
RUTHERFORD AVE
3,828
1,421
AVE
WARREN
2,316
3,057
WASHINGTON ST N
9,617
7,106
5,373
16,723
JULY 1, 1927
SULLIVAN SQUARE
163
8,000
3,935
ALFORD
ST
4,065
8,131
MAIN
4,625
3,506
1,490
CAMBRIDGE ST
1,756
5,105
ST
3,960
9,065
RUTHERFORD AVE
4,169
4,007
3,246
8,176
JUNE 30, 1927
RUTHERFORD AVE. & AUSTIN ST.
164
3,456
1,544
RUTHERFORD
1,912
1,444
ST
2,660
1,216
1,462
AUSTIN
2,712
1,250
1,527
AVE
1,911
3,438
JULY 1, 1927
RUTHERFORD AVE & CHAPMAN ST
165
8,987
4,231
RUTHERFORD
4,756
92
ST
152
244
2,907
CHAPMAN
3,043
1,363
AVE
1,964
5,950
3327
JULY 1, 1927
AUSTIN, CHAPMAN & WASHINGTON STS
166
5,850
2,844
CHAPMAN
3,006
1,462
AUSTIN
ST
2,624
1,162
5,050
PRISON POINT BR
4,904
467
FREIGHT YDS
485
WASHINGTON ST
1,028
1,002
9,954
952
2,030
JULY 1, 1927
CHELSEA & MEDFORD STS.
167
1,679
MEDFORD
1,000
679
ST
14,495
7,020
ST
7,475
6,344
CHELSEA
7,094
13,438
AUG. 5, 1927
CENTRAL SQUARE
170
405
2902
BORDER
175
ST
MERIDAN
1352
1550
230
ST
196
SARATOGA ST
186
382
590
BENNINGTON ST
721
1311
PORTER
416
ST
514
930
436
BORDER ST
613
220
LIVERPOOL ST
310
MERIDAN ST
1160
1021
1047
530
2181
JULY 5, 1927
SHELBY, SARATOGA & CHELSEA STS
168
1238
300
SHELBY ST
938
2082
ST
2100
4182
668
SARATOGA ST
152
1940
CHELSEA
1840
820
3780
JULY 6, 1927
PRESCOTT, CHELSEA & BENNINGTON STS
169
472
214
PRESCOTT
258
3630
1930
ST
1700
350
ST
1630
1380
620
BENNINGTON
3520
1940
CHELSEA
1920
325
ST
275
4140
3860
600
JULY 6, 1927

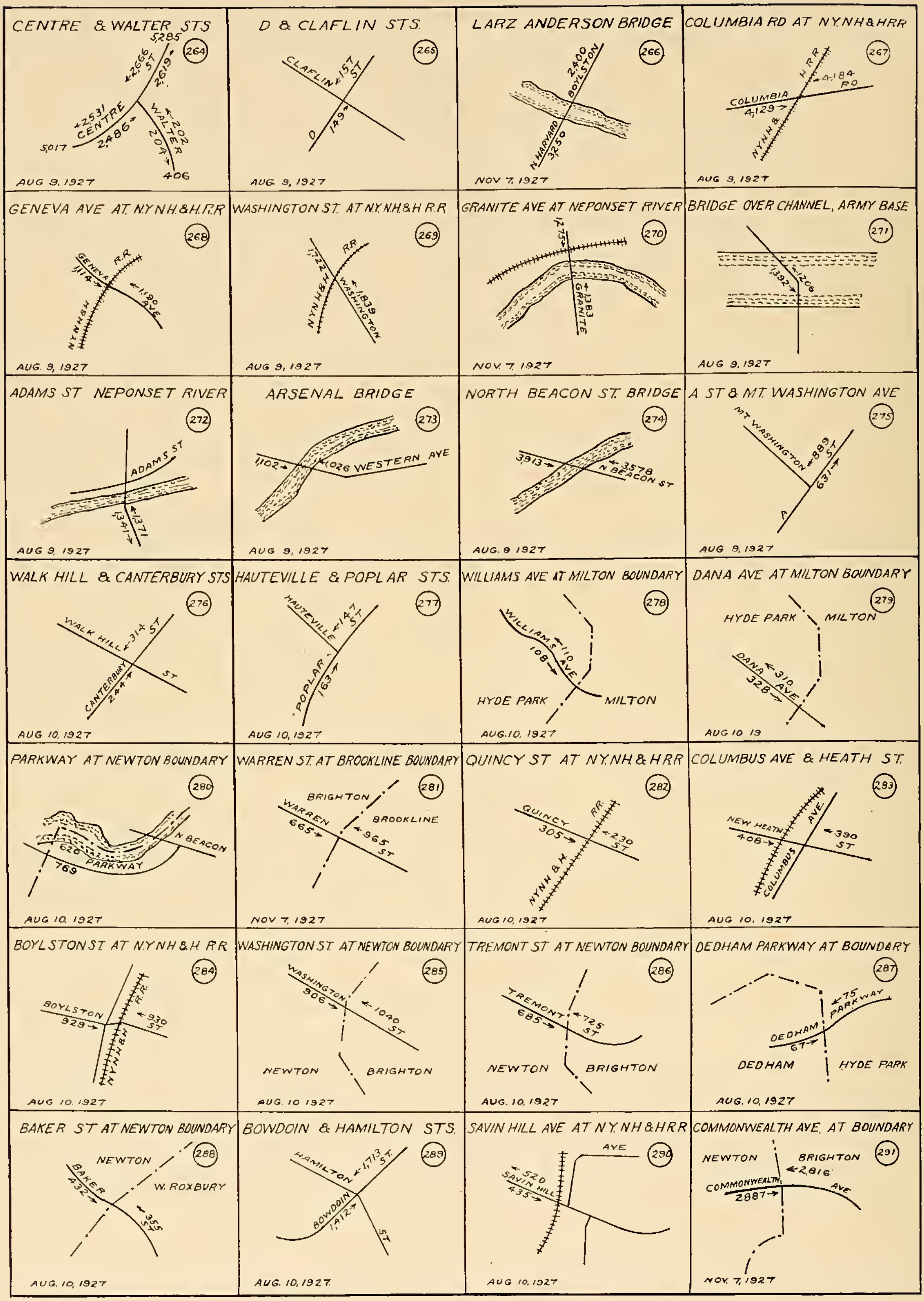

MAVERICK SQUARE
171
JULY 5, 1927
ANDREW SQUARE
172
JULY 7 1927
DORCHESTER ST. & OLD COLONY AVE
173
JULY 7, 1927
COLUMBIA RD OLD COLONY AVE & PREBLE ST.
174
JULY 7, 1927
BROADWAY & DORCHESTER ST.
175
JULY 7, 1927
COLUMBIA RD & OLD COLONY AVE
176
JULY 7, 1927
COMMONWEALTH AVE & ST MARY'S ST
177
JULY 8, 1927
BAY STATE RD & ASHBY ST
178
JULY 8, 1927
COMMONWEALTH & BRIGHTON AVES.
179
JULY 11, 1927
COMMONWEALTH AVE & WASHINGTON ST
180
JULY 11, 1927
COMMONWEALTH & HARVARD AVES.
181
JULY 8, 1927
COMMONWEALTH & CHESTNUT HILL AVES.
182
JULY 11, 1927
CLEVELAND CIRCLE
183
JULY 12, 1927
WASHINGTON & MARKET STS.
184
JULY 12, 1927
BRIGHTON & HARVARD AVES.
185
JULY 12, 1927
UNION SQUARE
186
JULY 12 1927
NORTH BEACON & MARKET STS.
187
JULY 12 1927
WESTERN AVE. & NO. HARVARD ST.
188
AUG 10, 1927

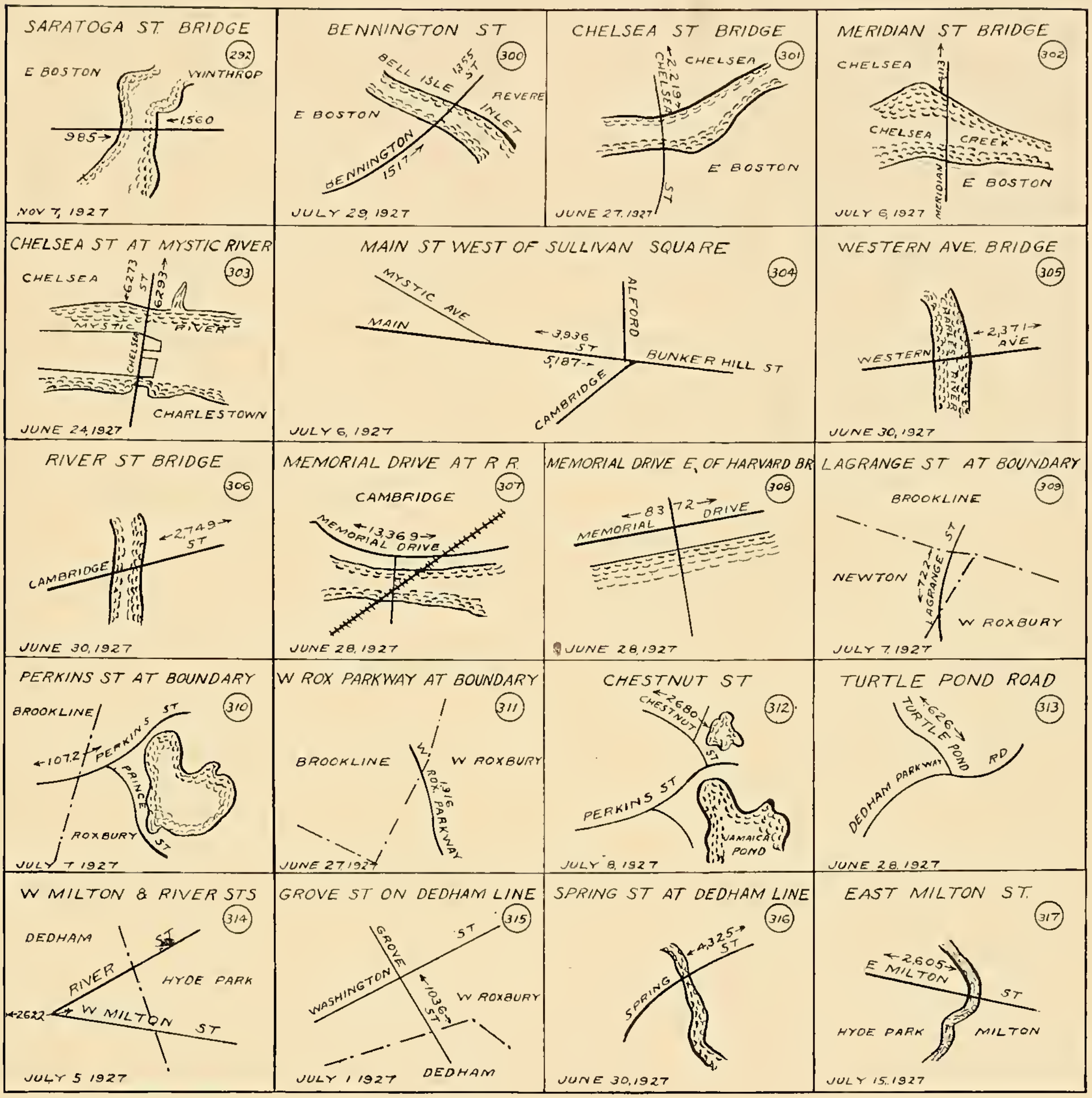

BLUE HILL AVE & WARREN ST
189
JULY 27, 1927
BLUE HILL AVE & WASHINGTON ST
190
JULY 27, 1927
WASHINGTON ST & COLUMBUS AVE
191
JULY 27, 1927
ROXBURY CROSSING
192 193 194
JULY 28, 1927
CENTRE, ROXBURY & DUDLEY STS
195
JULY 28, 1927
COLUMBUS AVE., CENTRE & HEATH STS.
196
JULY 28, 1927
HUNTINGTON AVE & TREMONT ST
197
JULY 29, 1927
HUNTINGTON AVE. & RUGGLES ST
198
JULY 28, 1927
COLUMBUS AVE & WHITTIER ST
199
JULY 29, 1927
RUGGLES ST., COLUMBUS AVE & TREMONT ST
200 201
JULY 29, 1927
SHAWMUT AVE & RUGGLES ST
202
JULY 29, 1927
SHAWMUT AVE. & ROXBURY ST
203
AUG. 2, 1927
ALBANY & NORTHAMPTON STS.
204
AUG 2, 1927
RIVERWAY, HUNTINGTON & POND AVES
205
JULY 21, 1927
HUNTINGTON & SO HUNTINGTON AVES
206
JULY 21, 1927
BLUE HILL AVE., DUDLEY & HAMPDEN STS
207
NOV 1, 1927
DUDLEY & WASHINGTON STS
210
OCT 31, 1927


ROXBURY ST. & GUILD ROW
OCT. 31, 1927
WASHINGTON, ROXBURY & ZEIGLER STS
OCT 31, 1927
WASHINGTON, WARREN & PALMER STS
OCT 31, 1927
MORTON & CANTERBURY STS.
JULY 26, 1927
BLUE HILL AVE., OLD ROAD & GLENWAY ST
JULY 26, 1927
BLUE HILL AVE & CANTERBURY ST
JULY 26, 1927
BLUE HILL, TALBOT AVES & ANGELL ST
JULY 26, 1927
BLUE HILL AVE. & COLUMBIA RD
JULY 26, 1927
BLUE HILL AVE, & SEAVER ST
JULY 27, 1927
EDWARD EVERETT SQUARE
AUG. 1, 1927
DORCHESTER AVE. & COLUMBIA RD.
AUG. 1, 1927
DORCHESTER AVE., FREEPORT & HANCOCK STS
AUG 1. 1927
COLUMBIA RD DUDLEY & STOUGHTON STS
AUG 1. 1927
MORTON & NORFOLK STS
AUG 2. 1927
TALBOT AVE & WASHINGTON ST
AUG 2 1927
COLUMBIA RD & HANCOCK ST
AUG. 2. 1927
NEPONSET AVE & OLD COLONY PARKWAY
AUG 2, 1927


DORCHESTER AVE & ADAMS ST
228
AUG 2, 1927
COLUMBIA RD & SEAVER ST
229
AUG. 5, 1927
STOUGHTON & PLEASANT STS.
230
AUG. 5, 1927
BLUE HILL AVE, WALK HILL & NORFOLK STS
231 232
JULY 25, 1927
BLUE HILL AVE & MORTON ST
233
JULY 25, 1927
BLUE HILL AVE., RIVER & OAKLAND STS
234
JULY 25, 1927
HYDE PARK AVE & RIVER ST
236
JULY 25, 1927
WEST & RIVER STS
237
JULY 25, 1927
PERKINS, DAY & CENTRE STS
238
JULY 21, 1927
SOUTH HUNTINGTON AVE & CENTRE ST
239
JULY 21, 1927
JAMAICAWAY & PERKINS ST
240
JULY 18, 1927
WASHINGTON & GREEN STS & GLEN RD
241
JULY 15, 1927
CENTRE, SOUTH & ELIOT STS.
242
JULY 21, 1927
ARBORWAY, POND & PRINCE STS. JAMAICAWAY & FRANCIS PARKMAN DRIVE
243
JULY 18, 1927
ARBORWAY, CENTRE, PRINCE, ORCHARD & MAY STS.
244
JULY 19, 1927
WASHINGTON ST & HYDE PARK AVE
245
JULY 20, 1927


ARBORWAY, SOUTH & ST ANN STS
246
JULY 20, 1927
ARBORWAY, WASHINGTON & MORTON STS
247
JULY 20, 1927
ARBORWAY & CIRCUIT DRIVE
248
JULY 20, 1927
HYDE PARK AVE. & WALK HILL ST
249
JULY 15, 1927
HYDE PARK AVE & ASHLAND ST
250
JULY 15, 1927
WASHINGTON, POPLAR & CORINTH STS
251
JULY 15, 1927
WASHINGTON & ASHLAND STS.
252
JULY 15, 1927
WASHINGTON & SOUTH STS
253
JULY 15, 1927
WASHINGTON ST. & W ROXBURY PARKWAY
254
JULY 14, 1927
WASHINGTON & LAGRANGE STS.
255
JULY 14, 1927
WASHINGTON & GROVE STS.
256
JULY 14, 1927
ANAWAN AVE & W ROXBURY PARKWAY
257
JULY 15, 1927
CENTRE ST. & W ROXBURY PARKWAY
258
JULY 14, 1927
BELGRADE AVE. & W ROXBURY PARKWAY
259
JULY 14 1927
CENTRE ST. & MANTHORNE RD
260
JULY 14, 1927
CENTRE & LAGRANGE STS
261
JULY 14, 1927
BIRCH & CORINTH STS.
262
AUG 5, 1927
BELGRADE AVE., ROBERTS & CORINTH STS
263
AUG 5, 1927


CENTRE & WALTER STS
264
5,285
2,666 ST
2619
2531 CENTRE
2486
5,017
WALTER
202
204
406
AUG 9, 1927
D & CLAFLIN STS.
265
CLAFLIN
157 ST
D
149
AUG 9, 1927
LARZ ANDERSON BRIDGE
266
2,400 BOYLSTON
N. HARVARD
3,250
NOV 7, 1927
COLUMBIA RD AT NY.NH&HRR
267
H RR
4,184 RD
COLUMBIA
4,129
NYNH&
AUG 9, 1927
GENEVA AVE AT NY.NH&H.R.R
268
GENEVA
R.R.
1,114
1,190 AVE
NYNH&H
AUG. 9, 1927
WASHINGTON ST. AT NY.NH&H R.R
269
RR
1,722
NYNH&H
1839 WASHINGTON
AUG 9, 1927
GRANITE AVE AT NEPONSET RIVER
270
1,175
1383 GRANITE
NOV. 7, 1927
BRIDGE OVER CHANNEL, ARMY BASE
271
1392
1,206
AUG 9, 1927
ADAMS ST NEPONSET RIVER
272
ADAMS ST
1341
1371
AUG 9, 1927
ARSENAL BRIDGE
273
1,102
1,026 WESTERN AVE
AUG 9, 1927
NORTH BEACON ST. BRIDGE
274
3913
3578 N BEACON ST
AUG. 9 1927
A ST & MT. WASHINGTON AVE
275
MT WASHINGTON
889 ST
631
A
AUG 9, 1927
WALK HILL & CANTERBURY STS
276
WALK HILL
314 ST
CANTERBURY
244
ST
AUG 10, 1927
HAUTEVILLE & POPLAR STS.
277
HAUTEVILLE
147 ST
POPLAR
163
AUG 10, 1927
WILLIAMS AVE AT MILTON BOUNDARY
278
WILLIAMS
110
108
AVE
HYDE PARK
MILTON
AUG. 10, 1927
DANA AVE AT MILTON BOUNDARY
279
HYDE PARK
MILTON
DANA
310
AVE
328
AUG 10 19
PARKWAY AT NEWTON BOUNDARY
280
N BEACON
620
PARKWAY
769
AUG 10, 1927
WARREN ST. AT BROOKLINE BOUNDARY
281
BRIGHTON
WARREN
BROOKLINE
665
965 ST
NOV 7, 1927
QUINCY ST AT NY.NH&HRR
282
QUINCY
RR
305
230 ST
NYNH&H
AUG 10, 1927
COLUMBUS AVE & HEATH ST.
283
NEW HEATH
AVE
408
390 ST
COLUMBUS
AUG 10, 1927
BOYLSTON ST AT NYNH&H RR
284
BOYLSTON
RR
929
930 ST
NYNH&H
AUG 10. 1927
WASHINGTON ST. AT NEWTON BOUNDARY
285
WASHINGTON
906
1040 ST
NEWTON
BRIGHTON
AUG. 10 1927
TREMONT ST AT NEWTON BOUNDARY
286
TREMONT
685
725 ST
NEWTON
BRIGHTON
AUG. 10, 1927
DEDHAM PARKWAY AT BOUNDARY
287
75
PARKWAY
DEDHAM
67
DEDHAM
HYDE PARK
AUG. 10, 1927
BAKER ST AT NEWTON BOUNDARY
288
NEWTON
BAKER
432
W. ROXBURY
355 ST
AUG. 10, 1927
BOWDOIN & HAMILTON STS.
289
HAMILTON
1,713 ST.
BOWDOIN
1,412
ST
AUG. 10, 1927
SAVIN HILL AVE AT NY.NH&HRR
290
AVE
520
SAVIN HILL
435
AUG 10, 1927
COMMONWEALTH AVE. AT BOUNDARY
291
NEWTON
BRIGHTON
2,816
COMMONWEALTH
AVE
2887
NOV. 7, 1927


SARATOGA ST BRIDGE
292
E BOSTON
WINTHROP
985
1560
NOV 7, 1927
BENNINGTON ST
300
BELL ISLE INLET
1355 ST
REVERE
E BOSTON
BENNINGTON 1517
JULY 29, 1927
CHELSEA ST BRIDGE
301
CHELSEA
2,219 CHELSEA ST
E BOSTON
JUNE 27, 1927
MERIDIAN ST BRIDGE
302
CHELSEA
CHELSEA CREEK
MERIDIAN 3113
E BOSTON
JULY 6, 1927
CHELSEA ST AT MYSTIC RIVER
303
CHELSEA
6273 6293 ST
MYSTIC RIVER
CHELSEA
CHARLESTOWN
JUNE 24, 1927
MAIN ST WEST OF SULLIVAN SQUARE
304
MYSTIC AVE
MAIN
3,936 ST
5187
ALFORD
BUNKER HILL ST
CAMBRIDGE
JULY 6, 1927
WESTERN AVE. BRIDGE
305
2,371 AVE
WESTERN
JUNE 30, 1927
RIVER ST BRIDGE
306
2,749 ST
CAMBRIDGE
JUNE 30, 1927
MEMORIAL DRIVE AT R R
307
CAMBRIDGE
13,369
MEMORIAL DRIVE
JUNE 28, 1927
MEMORIAL DRIVE E. OF HARVARD BR
308
8372
MEMORIAL DRIVE
JUNE 28, 1927
LAGRANGE ST AT BOUNDARY
309
BROOKLINE
NEWTON
722 LAGRANGE ST
W ROXBURY
JULY 7, 1927
PERKINS ST AT BOUNDARY
310
BROOKLINE
1072 PERKINS ST
PRINCE ST
ROXBURY
JULY 7, 1927
W ROX PARKWAY AT BOUNDARY
311
BROOKLINE
W ROXBURY
W. ROX. PARKWAY 1916
JUNE 27, 1927
CHESTNUT ST
312
2680 CHESTNUT ST
PERKINS ST
JAMAICA POND
JULY 8, 1927
TURTLE POND ROAD
313
626 TURTLE POND RD
DEDHAM PARKWAY
JUNE 28, 1927
W MILTON & RIVER STS
314
DEDHAM
RIVER ST
HYDE PARK
2622 W MILTON ST
JULY 5 1927
GROVE ST ON DEDHAM LINE
315
GROVE
WASHINGTON ST
1036 ST
W ROXBURY
DEDHAM
JULY 1 1927
SPRING ST AT DEDHAM LINE
316
4325 ST
SPRING
JUNE 30, 1927
EAST MILTON ST.
317
2,605
E MILTON ST
HYDE PARK
MILTON
JULY 15, 1927

C. ORIGIN AND DESTINATION COUNT TABLES

Origin and destination counts were made at 105 points within the City of Boston. The counts were made in the summer of 1927 by the Mayor's Street Traffic Survey. The counts covered from 10 to 50 per cent of the vehicles passing in one direction. Ten-hour volume counts were also made of all vehicles passing in both directions. The Planning Board has analyzed these counts so as to show the traffic going between pairs of districts and has expanded the results obtained in the ratio that the number of vehicles questioned bears to the total number of vehicles in both directions as shown by the volume count.

Tables analyzing ninety-three of these counts are printed herewith. The original tabulations from which these tables were drawn up listed the traffic between each pair of the sixty-nine traffic districts into which the area of the Metropolitan District was divided.

For the purpose of analyzing these original tabulations the entire Metropolitan District was divided into five traffic sectors radiating out from Boston Proper. Boundaries of the traffic sectors are shown in Figure 97.

In addition to the tables herewith presented origin and destination counts were taken and tabulations made for the following points and are on file in the office of the Planning Board:

Milk Street (east of Washington St.)
Franklin Street (east of Washington St.)
Court Street (at City Hall Annex.)
Bedford Street (east of Washington St.)
Kingston Street (north of Essex St.)
Cambridge Street (east of Charles St.)
Charles Street (south of Cambridge St.)
Shawmut Avenue (southwest of Dover St.)
Shawmut Avenue (north of Dover St.)
Larz Anderson Bridge.
Dudley Street (east of Warren St.)
Warren Street (south of Dudley St.)

LIST OF ORIGIN AND DESTINATION COUNT TABLES

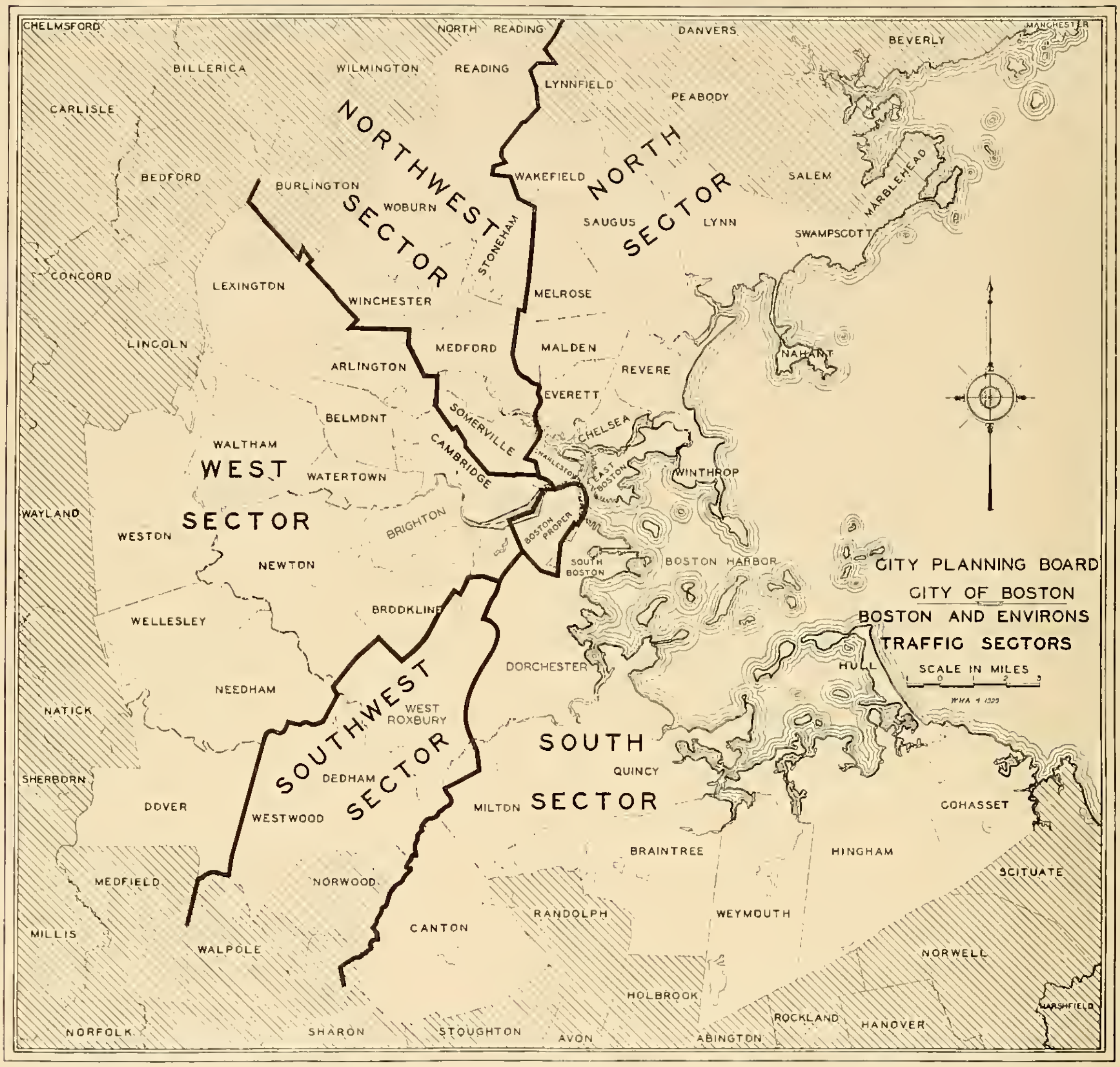


Figure 97.—Traffic Sectors, Metropolitan Boston.

For use in analyzing the origin and destination counts the entire Metropolitan District was divided into five traffic sectors radiating out from Boston Proper. The origin and destination count tables which follow show the traffic in both directions between each pair of sectors and also between the various sectors and any traffic district within a sector which has a comparatively large volume of traffic at the point at which a particular count is taken.

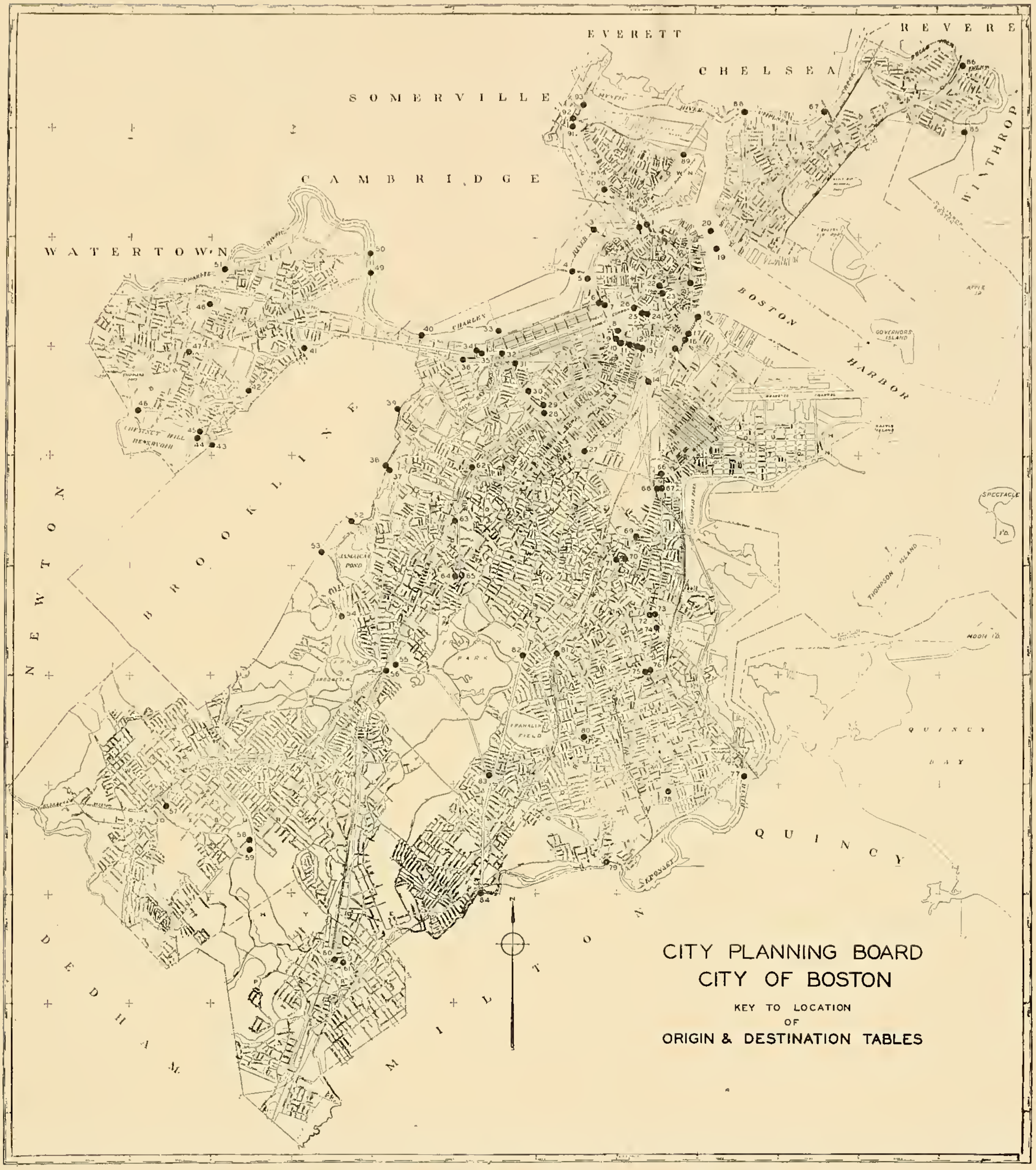


FIGURE 98.—KEY TO LOCATION OF ORIGIN AND DESTINATION COUNT TABLES.

Origin and Destination Count 1 — Charlestown Bridge (Total Vehicles — 16,716)

Between / and	North Sector	East Boston	Charlestown	Chelsea	Everett	Northwest Sector	Somerville	West Sector	Cambridge
Central	**7,700**	311	1,606	1,321	837	**2,485**	816	**479**	121
Business	3,146	115	495	695	299	814	215	160	15
Market	986	35	195	226	65	453	119	95	20
Atlantic Avenue	1,214	30	270	190	150	373	139	80	10
Commercial Street	110	—	5	40	20	35	15	35	15
North Station	842	45	210	139	84	210	70	30	15
Haymarket	1,033	119	225	210	94	370	160	70	25
Beacon Hill	300	10	45	60	35	65	35	15	10
Back Bay	**870**	21	132	211	68	**163**	47	**21**	—
Back Bay	95	5	25	15	15	10	—	5	—
Park Square	339	—	30	69	—	65	20	10	—
South End	434	25	85	129	40	60	25	5	—
Albany Street	5	—	—	5	—	5	—	—	—
West Sector	**497**	26	84	153	42	**31**	—	—	—
Fens	115	5	21	26	5	21	—	—	—
Brighton	84	—	21	32	21	—	—	—	—
Brookline	211	16	37	63	11	10	—	—	—
Southwest Sector	**352**	31	95	80	21	**62**	10	—	—
South Sector	**3,206**	112	727	774	359	**814**	274	**36**	5
South Boston	1,232	58	353	226	153	432	137	31	5
Roxbury	473	21	74	158	26	84	32	5	—
North Dorchester	191	11	53	32	21	31	5	—	—

Origin and Destination Count 2 — Warren Bridge (Total Vehicles — 8,497)

Between / and	North Sector	East Boston	Charlestown	Chelsea	Everett	Northwest Sector	Somerville	West Sector	Cambridge
Central	**4,751**	15	2,271	717	418	**718**	299	**120**	45
Business	615	—	432	—	—	282	60	14	—
Market	816	—	601	102	18	64	14	—	—
Atlantic Avenue	433	—	197	102	67	50	18	—	—
Commercial Street	120	—	70	18	—	14	14	—	—
North Station	755	18	319	98	109	60	32	28	—
Haymarket	688	—	311	18	42	119	91	—	—
Beacon Hill	1,126	—	477	161	109	165	109	14	—
Back Bay	**599**	—	209	45	45	**75**	45	**14**	—
Back Bay	32	—	18	—	—	14	14	—	—
Park Square	302	—	46	28	—	56	28	14	—
South End	225	—	130	—	49	—	—	—	—
North Sector	**30**	30	—	—	—	—	—	—	—
Charlestown	30	30	—	—	—	—	—	—	—
West Sector	**825**	45	255	105	30	**75**	—	—	—
Fens	240	—	75	—	15	60	—	—	—
Brighton	90	—	15	30	—	—	—	—	—
Brookline	225	—	90	—	15	—	—	—	—
Southwest Sector	**180**	—	30	30	45	**30**	—	—	—
South Sector	**975**	15	420	180	60	**105**	45	—	—
South Boston	195	—	105	30	45	45	30	—	—
Roxbury	150	—	90	30	—	30	—	—	—
North Dorchester	90	—	15	30	15	—	—	—	—

Origin and Destination Count 3 — Craigie Bridge

Total Vehicles — 15,231

Between / and	North Sector	East Boston	Charlestown	Chelsea	Everett	Northwest Sector	Somerville	West Sector	Cambridge
Central	**1,722**	—	269	54	197	**3,765**	2,168	**2,960**	2,187
Business	720	—	84	15	91	1,496	944	885	687
Market	105	—	15	—	—	222	161	538	408
Atlantic Avenue	167	—	46	15	38	183	130	227	181
Commercial Street	—	—	—	—	—	15	15	46	23
North Station	38	—	—	—	23	228	130	528	475
Haymarket	60	—	—	—	—	252	123	299	246
Beacon Hill	478	—	131	15	68	692	374	708	458
Back Bay	**1,684**	—	143	72	125	**1,578**	412	**394**	340
Back Bay	340	—	15	—	76	249	99	30	30
Park Square	861	—	53	30	30	719	151	265	145
South End	326	—	68	38	15	319	145	184	184
North Sector	—	—	—	—	—	**18**	18	—	—
East Boston	—	—	—	—	—	18	18	—	—
West Sector	**324**	54	54	90	54	—	—	—	—
Fens	144	36	—	36	36	—	—	—	—
Brookline	90	—	18	36	—	—	—	—	—
Southwest Sector	**378**	36	90	18	90	**162**	72	**36**	36
South Sector	**774**	—	162	18	162	**880**	520	**556**	484
South Boston	180	—	72	—	18	359	233	251	233

Origin and Destination Count 4 — Longfellow Bridge

Total Vehicles — 11,073

Between / and	North Sector	East Boston	Chelsea	Everett	Northwest Sector	Somerville	West Sector	Cambridge	Brighton
Central	**334**	—	—	35	**933**	352	**6,984**	4,309	493
Business	104	—	—	—	426	169	3,028	1,919	169
Market	15	—	—	—	78	33	796	465	120
Atlantic Avenue	—	—	—	—	50	—	257	188	—
Commercial Street	—	—	—	—	—	—	95	77	—
North Station	—	—	—	—	36	18	283	214	18
Haymarket	53	—	—	18	36	—	683	455	35
Beacon Hill	68	—	—	—	135	82	1,271	709	68
Back Bay	**106**	—	—	—	**246**	70	**985**	738	53
Back Bay	54	18	—	18	18	—	128	128	—
Park Square	190	—	—	18	226	70	524	403	18
South End	18	—	—	—	133	79	212	143	15
West Sector	**267**	160	36	18	—	—	**18**	18	—
Brookline	36	18	18	—	—	—	—	—	—
Southwest Sector	**18**	—	—	—	—	—	**18**	18	—
South Sector	**36**	—	—	—	**141**	35	**987**	793	35
South Boston	36	—	—	—	123	35	739	545	35
Roxbury	—	—	—	—	—	—	70	70	—

Origin and Destination Count 5 — Embankment Road (at Cambridge Street)

Total Vehicles — 9,323

Between / and	**Central**	Business	Market	Atlantic Avenue	North Station	Haymarket	Beacon Hill	**Back Bay**	Back Bay	Park Square	South End	**West Sector**	Cambridge	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	North Dorchester
Central	488	433	*	—	*	*	*	**1,058**	439	408	174	**1,942**	219	244	576	**377**	788	13	394	6
Business	*	74	*	—	*	*	*	112	62	25	25	570	111	124	112	67	142	—	56	6
Market	62	62	—	—	—	—	—	38	19	19	—	118	—	12	56	18	49	—	25	—
Atlantic Avenue	—	—	—	—	—	—	—	24	6	12	6	24	18	—	6	—	6	—	6	—
Commercial Street	—	—	—	—	—	—	—	—	—	—	—	18	—	—	6	—	—	—	—	—
North Station	43	43	—	—	—	—	—	235	74	111	50	229	6	50	62	6	86	—	74	—
Haymarket	56	56	—	—	—	—	—	179	74	68	37	179	—	25	62	31	92	—	43	—
Beacon Hill	241	198	—	—	—	—	43	433	204	173	56	808	80	43	273	243	408	6	192	—
North Sector	**582**	466	6	—	6	—	85	**1,271**	296	633	277	**547**	—	63	158	**136**	**356**	26	143	6
East Boston	31	37	—	—	—	—	—	69	19	31	19	81	—	—	25	—	31	—	19	—
Charlestown	56	50	—	—	—	—	—	81	19	19	43	50	—	—	25	25	57	13	6	—
Chelsea	25	19	—	—	—	—	6	56	6	37	12	76	—	6	19	19	32	—	6	—
Everett	75	50	—	—	—	—	19	131	25	68	37	30	—	6	6	6	12	—	6	6
Northwest Sector	**313**	180	12	6	12	12	43	**620**	105	377	154	**76**	—	—	—	**31**	**222**	24	106	—
Somerville	119	81	6	—	—	6	19	244	50	130	68	32	—	—	—	25	80	6	31	—
West Sector	*	*	*	*	*	*	*	**419**	105	240	68	**6**	6	—	—	**18**	**73**	6	37	6
Cambridge	*	*	—	*	*	—	*	332	99	179	50	*	—	—	—	18	73	6	37	6
Brighton	*	*	*	—	*	*	*	6	—	6	—	—	—	—	—	—	—	—	—	—

Origin and Destination Count 6 — Charles Street (North of Beacon Street)

Total Vehicles — 11,183

Between / and	**Central**	Business	Market	Atlantic Avenue	North Station	Haymarket	Beacon Hill	**Back Bay**	Back Bay	Park Square	South End	**West Sector**	Cambridge	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	North Dorchester
Central	**410**	*	*	*	—	*	332	**1,550**	692	127	494	**1,390**	374	196	249	**232**	**855**	196	339	53
Business	296	20	—	—	20	—	256	116	60	20	36	426	278	—	—	32	72	16	16	—
Market	36	—	—	—	—	—	36	31	31	—	—	301	36	71	47	—	16	—	16	—
Atlantic Avenue	40	—	—	—	20	20	—	36	20	—	16	56	36	—	—	—	32	—	16	16
Commercial Street	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16	16	—	16	—
North Station	—	—	—	*	—	—	—	225	67	87	71	72	—	20	16	20	40	—	20	20
Haymarket	20	—	—	*	—	—	20	122	31	20	71	99	—	31	16	56	67	—	31	20
Beacon Hill	*	*	*	—	—	—	20	733	483	—	300	476	20	122	142	83	601	136	214	20
Back Bay	*	*	*	*	*	*	*	**36**	*	16	*	*	*	—	*	**36**	**54**	—	—	—
Back Bay	*	*	*	*	*	*	*	20	20	—	—	*	*	—	*	20	20	—	—	—
South End	*	*	—	*	*	*	*	32	—	16	16	*	*	—	*	—	—	—	—	—
North Sector	**428**	276	20	—	20	20	80	**1,354**	358	550	387	**90**	—	—	54	**108**	**966**	196	393	36
East Boston	—	—	—	—	—	—	—	107	36	20	36	—	—	—	—	—	72	—	—	18
Charlestown	18	—	—	—	—	—	20	356	52	171	212	18	—	—	—	18	286	89	125	18
Chelsea	—	—	—	—	—	—	—	107	40	16	—	—	—	—	—	36	179	—	125	—
Everett	18	—	—	—	—	—	20	89	20	40	16	18	—	—	18	—	159	53	53	—
Northwest Sector	**427**	231	20	20	—	—	40	**927**	294	359	246	**36**	—	—	18	**36**	**607**	90	142	18
Somerville	143	71	—	—	—	—	40	392	102	127	147	18	—	—	18	—	160	18	53	18
West Sector	*	*	*	*	*	*	*	**908**	433	303	229	—	—	—	—	**18**	**715**	375	161	36
Cambridge	*	*	*	*	—	—	*	481	305	91	173	—	—	—	—	18	661	357	161	36
Brookline	*	—	*	—	*	*	*	36	—	20	20	—	—	—	—	—	—	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 7 — Beacon Street (East of Charles Street)

Total Vehicles — 11,618

Between / and	Central	Business	Market	Atlantic Aveoue	North Station	Haymarket	Beacon Hill	Back Bay	Back Bay	Park Square	South End	Albany Street	West Sector	Cambridge	Fens	Brighton	Brookline	Southwest Sector	South Sector	South Boston	Roxbury	North Dorchester
Central	**391**	*	—	*	*	*	264	**2,665**	967	1,036	485	10	**6,037**	505	1,043	579	2,013	**570**	828	81	228	16
Business	237	56	—	*	*	—	141	1,549	594	697	258	—	3,520	265	594	332	1,267	297	351	15	110	8
Market	—	—	—	—	—	—	—	162	74	49	39	—	544	25	18	80	167	44	39	—	23	—
Atlantic Avenue	15	15	—	—	—	—	—	53	23	10	10	10	148	—	41	8	75	23	20	—	10	10
North Station	33	25	—	—	—	—	8	108	39	69	—	—	100	8	39	10	15	16	10	—	10	—
Haymarket	15	—	—	—	—	—	15	157	49	54	54	—	190	—	31	39	47	59	67	8	10	—
Beacon Hill	*	*	—	—	*	*	100	469	188	157	124	—	1,405	168	263	133	369	123	352	83	80	8
Back Bay	*	*	*	*	*	*	*	**16**	—	*	8	8	**24**	16	—	—	—	—	**24**	8	—	—
Back Bay	*	*	*	*	*	*	*	—	—	—	—	8	—	—	—	—	—	—	8	—	—	—
Park Square	*	*	*	*	*	*	*	16	—	8	8	—	—	—	—	—	—	—	8	—	—	—
South End	*	*	*	*	—	*	*	*	—	*	—	—	24	8	8	—	8	—	—	—	—	—
North Sector	**153**	62	—	—	—	—	64	**137**	54	62	57	—	**224**	—	104	24	72	48	**88**	16	32	8
East Boston	8	—	—	—	—	—	—	16	15	—	8	—	24	—	16	—	—	8	16	—	8	—
Charlestown	16	10	—	—	—	—	—	24	15	—	8	—	32	—	8	24	—	—	24	—	16	—
Chelsea	—	—	—	—	—	—	—	33	—	15	31	—	32	—	8	—	24	8	8	8	—	—
Everett	16	8	—	—	—	—	—	8	—	8	—	—	—	—	—	—	—	8	8	8	—	—
Northwest Sector	**187**	90	15	—	8	8	77	**106**	—	86	18	—	**56**	—	48	—	8	—	**24**	—	8	—
Somerville	73	36	15	—	—	8	15	41	—	24	8	—	16	—	16	—	—	—		—	—	—
West Sector	*	*	*	*	*	*	*	*	*	—	*	—	—	—	—	—	—	—	40	32	—	—
Fens	*	*	*	*	*	*	*	—	—	—	*	—	—	—	—	—	—	—	8	8	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 8 — Boylston Street (Between Tremont and Charles Streets)

Total Vehicles — 13,968

and \ Between	**Central**	Business	Market	Atlantic Avenue	North Station	Haymarket	Beacon Hill	**Back Bay**	Back Bay	Park Square	South End	**North Sector**	East Boston	Charlestown	Chelsea	Everett	**Northwest Sector**	Somerville	**West Sector**	Cambridge	Fens	Brighton	Brookline	**Southwest Sector**
Central	**443**	*	*	*	—	7	*	*	*	*	*	**468**	6	13	6	34	**514**	143	**6,502**	771	1,298	604	1,912	*
Business	407	119	—	20	—	7	254	*	*	*	*	351	7	7	—	20	431	127	5,102	667	1,024	507	1,297	*
Market	25	—	—	25	—	—	—	*	*	*	*	13	—	—	—	—	25	7	217	17	20	49	57	*
Atlantic Avenue	66	*	*	—	—	—	21	*	*	*	*	14	—	—	—	—	27	7	303	31	107	43	27	*
Commercial Street	7	7	—	—	—	—	—	7	—	7	—	—	—	—	—	—	—	—	12	12	—	—	—	—
North Station	—	—	—	—	—	—	—	*	—	*	*	5	—	—	—	—	7	—	40	—	20	—	13	*
Beacon Hill	288	*	—	*	—	—	13	*	*	*	*	28	7	—	—	—	14	—	86	—	18	7	20	*
Back Bay	**2,866**	2,496	106	408	105	43	72	**103**	*	*	*	**267**	32	51	64	13	**205**	51	**25**	13	—	—	—	*
Back Bay	828	697	40	78	—	—	13	13	—	—	*	40	13	13	—	—	27	7	7	—	—	—	7	—
Park Square	1,823	1,393	38	247	92	13	33	85	—	40	45	183	20	26	46	7	93	7	106	7	13	—	20	*
South End	568	393	23	83	13	30	26	78	13	*	20	67	13	13	13	—	69	36	37	5	13	.7	7	*
Albany Street	18	13	5	—	—	—	—	—	—	—	—	—	—	—	—	—	14	—	—	—	—	—	—	—
West Sector	*	*	*	*	*	153	*	*	*	*	*	**255**	31	32	50	12	**43**	12	—	—	—	—	—	—
Cambridge	*	*	*	*	—	13	—	*	—	*	*	—	—	—	—	—	—	—	—	—	—	—	—	—
Fens	*	*	*	*	*	18	*	—	—	*	*	94	6	13	19	6	31	6	—	—	—	—	—	—
Brighton	*	*	*	*	—	13	*	—	—	—	*	62	13	—	6	6	6	6	—	—	—	—	—	—
Brookline	*	*	*	*	*	51	*	—	*	*	*	31	—	—	13	—	—	—	—	—	—	—	—	—
Southwest Sector	**687**	539	41	41	7	—	32	**26**	—	19	20	**62**	—	13	—	25	**19**	6	—	—	—	—	—	—
South Sector	**704**	497	27	47	14	7	40	**236**	41	134	34	**55**	—	12	13	6	**69**	26	**413**	88	52	32	77	**6**
South Boston	32	—	—	7	—	—	33	96	14	47	—	6	—	6	—	—	51	26	383	64	52	32	77	6
Roxbury	218	92	13	26	7	7	—	—	—	7	—	19	—	—	13	—	—	—	6	6	—	—	—	—
North Dorchester	32	31	—	—	—	—	—	45	—	33	—	12	—	—	—	—	—	—	—	—	—	—	—	—

* Traffic is listed elsewhere in table.

ORIGIN AND DESTINATION COUNT 9 — STUART STREET (WEST OF TREMONT STREET)

Total Vehicles — 11,502

Between / and	**Central**	Business	Atlantic Avenue	Haymarket	**Back Bay**	Back Bay	Park Square	South End	**North Sector**	East Boston	Charlestown	Chelsea	Everett	**Northwest Sector**	Somerville	**West Sector**	Cambridge	Fens	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury
Central	**174**	*	*	—	**3,192**	142	2,692	381	**360**	—	23	12	23	**453**	104	**3,701**	789	464	383	859	*	*	*	*
Business	143	30	*	—	2,548	112	2,149	287	190	—	21	—	—	493	135	3,070	509	389	378	714	*	*	—	*
Market	11	11	—	—	91	19	61	11	—	—	—	—	—	19	—	159	59	30	—	21	19	11	—	11
Atlantic Avenue	60	11	—	—	368	11	338	19	22	—	—	—	—	21	—	376	172	80	11	11	*	*	*	*
Commercial Street	—	—	—	—	11	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	*
North Station	—	—	—	—	74	—	42	32	—	—	—	—	—	—	—	64	—	11	—	42	21	—	—	—
Haymarket	—	—	—	—	91	—	70	21	11	—	—	—	—	—	—	115	21	40	11	21	*	*	—	*
Beacon Hill	140	91	49	—	32	—	21	11	—	—	—	—	—	—	—	32	—	—	—	—	—	41	41	—
Back Bay	*	*	*	*	**244**	11	218	187	**313**	58	23	23	23	**221**	81	**465**	70	23	93	81	*	*	*	*
Back Bay	*	*	*	—	*	—	—	11	11	—	—	11	—	—	—	22	—	—	—	11	*	*	—	—
Park Square	*	*	*	*	*	—	74	144	225	59	32	—	—	54	21	149	21	11	21	32	*	*	*	*
South End	*	*	*	*	*	*	*	32	96	—	—	11	21	75	21	230	41	11	61	32	*	*	*	*
Albany Street	—	—	—	—	11	—	11	—	—	—	—	—	—	19	19	11	—	—	—	—	19	11	—	—
West Sector	*	*	*	*	*	*	*	*	**93**	—	23	12	—	—	—	—	—	—	—	—	—	*	*	*
Fens	*	*	*	*	*	—	*	*	23	—	—	—	—	—	—	—	—	—	—	—	—	*	*	*
Brighton	*	*	*	*	*	—	*	*	8	—	—	—	—	—	—	—	—	—	—	—	—	*	*	—
Brookline	*	*	*	*	*	*	*	*	58	—	23	12	—	—	—	—	—	—	—	—	—	*	*	—
Southwest Sector	**510**	430	22	41	**129**	11	32	65	**82**	12	—	—	—	—	—	—	—	—	—	—	—	*	*	—
South Sector	**918**	674	60	51	**293**	11	197	76	84	12	12	12	—	**12**	12	**234**	93	12	12	58	**12**	**12**	*	—
South Boston	35	—	—	—	105	—	114	21	24	12	12	—	—	12	12	222	81	12	12	58	12	12	—	—
Roxbury	476	336	30	32	58	—	32	11	24	—	—	—	—	—	—	12	12	—	—	—	—	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 10 — Tremont Street (South of Stuart)

Total Vehicles — 6,393

Between / and	**Back Bay**	Back Bay	Park Square	South End	**West Sector**	Fens	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	North Dorchester
Central	**1,638**	115	389	1,134	**124**	7	117	**431**	**2,560**	124	1,126	58
Business	956	71	140	745	83	17	66	252	1,413	128	613	33
Market	72	5	—	67	—	—	—	123	126	—	38	—
Atlantic Avenue	217	17	32	118	—	—	—	21	132	—	90	5
North Station	149	—	11	138	—	—	—	22	151	—	110	—
Haymarket	173	22	151	—	5	—	5	10	110	—	78	—
Beacon Hill	71	—	5	66	11	—	11	15	191	—	83	5
Back Bay	**110**	16	22	99	**234**	37	15	**36**	**305**	29	58	15
Park Square	54	16	—	38	120	5	—	31	189	22	38	—
South End	83	—	22	61	59	11	11	—	36	11	5	5
North Sector	**255**	—	26	237	—	—	—	**143**	**398**	14	226	7
East Boston	22	—	—	28	—	—	—	22	15	—	15	—
Charlestown	44	—	5	33	—	—	—	51	58	—	37	7
Chelsea	80	—	—	96	—	—	—	7	109	—	73	—
Everett	15	—	—	22	—	—	—	7	22	—	7	—
Northwest Sector	**65**	—	27	16	—	—	—	**15**	**72**	—	29	—
Somerville	—	—	—	—	—	—	—	—	7	—	—	—
West Sector	*	—	*	*	—	—	—	—	**7**	7	—	—
Cambridge	59	—	44	10	—	—	—	—	7	7	—	—
Brighton	29	—	11	—	—	—	—	—	—	—	—	—

Origin and Destination Count 11 — Washington Street (South of Kneeland)

Total Vehicles — 2,780

Between / and	**Back Bay**	Back Bay	Park Square	South End	Albany Street	**West Sector**	Cambridge	Fens	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	North Dorchester
Central	**975**	4	52	878	—	**110**	13	23	23	50	**298**	**737**	101	311	105
Business	678	—	35	643	—	108	13	13	22	35	195	527	62	195	98
Market	43	4	4	40	—	4	—	—	—	4	26	58	9	18	18
Atlantic Avenue	88	—	13	75	—	4	—	4	—	—	8	12	—	—	—
North Station	40	—	—	40	—	4	—	—	—	—	9	26	4	18	4
Haymarket	62	—	—	62	—	—	—	—	—	—	18	67	27	18	—
Beacon Hill	18	—	—	18	—	—	—	—	—	—	—	16	—	—	4
Back Bay	**60**	13	30	52	—	**71**	32	5	5	5	—	**18**	18	—	—
Back Bay	*	—	—	13	—	—	—	—	—	—	—	4	4	—	—
Park Square	*	—	4	26	—	12	8	4	—	—	4	21	4	—	9
South End	*	*	*	13	—	82	18	—	4	22	17	34	18	4	—
North Sector	**176**	8	8	145	9	**10**	—	—	—	—	**34**	**207**	34	80	32
East Boston	14	—	—	13	—	—	—	—	—	—	5	5	—	—	—
Charlestown	37	4	—	22	9	—	—	—	—	—	15	46	14	14	18
Chelsea	37	—	—	35	—	—	—	—	—	—	5	69	5	32	9
Everett	14	—	4	9	—	—	—	—	—	—	—	10	—	5	—
Northwest Sector	**41**	—	4	44	—	—	—	—	—	—	—	**24**	5	14	—
Somerville	18	—	—	22	—	—	—	—	—	—	—	14	5	9	—
West Sector	*	—	*	*	—	—	—	—	—	—	—	**19**	9	5	—
Cambridge	*	—	*	*	—	—	—	—	—	—	—	19	9	5	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 12 — Harrison Avenue (South of Kneeland)

Total Vehicles — 5,680

Between / and	**Back Bay**	Back Bay	Park Square	South End	Albany Street	**West Sector**	Cambridge	Fens	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	N. Dorchester
Central	**2,050**	56	130	1,668	37	**251**	—	70	42	111	**392**	**2,105**	267	632	140
Business	1,435	42	65	1,291	37	159	—	51	26	56	274	1,405	135	362	93
Market	119	—	23	96	—	14	—	—	—	14	47	127	12	61	—
Atlantic Avenue	157	—	28	129	—	52	—	14	12	26	14	168	51	47	14
Commercial Street	—	—	—	—	—	—	—	—	—	—	—	12	—	12	—
North Station	23	—	—	23	—	—	—	—	—	—	26	84	14	42	—
Haymarket	89	—	—	89	—	—	—	—	—	—	14	98	—	42	14
Beacon Hill	68	14	14	40	—	—	—	—	—	—	—	49	23	—	26
Back Bay	**84**	14	14	124	—	**70**	14	28	14	—	**14**	**140**	98	—	—
Back Bay	*	—	—	14	—	—	—	—	—	—	—	26	12	—	—
Park Square	*	—	—	14	—	—	—	—	—	—	—	26	12	14	—
South End	*	*	*	96	—	56	14	28	14	—	—	80	38	—	—
North Sector	**168**	—	—	165	—	**42**	—	42	—	—	**84**	**210**	28	98	—
East Boston	70	—	—	63	—	—	—	—	—	—	28	84	14	28	—
Charlestown	28	—	—	12	—	—	—	—	—	—	—	28	14	14	—
Chelsea	14	—	—	12	—	—	—	—	—	—	28	56	—	56	—
Everett	—	—	—	—	—	—	—	—	—	—	14	—	—	—	—
Northwest Sector	**56**	—	—	54	—	—	—	—	—	—	—	**14**	—	14	—
Somerville	28	—	—	28	—	—	—	—	—	—	—	14	—	14	—

Origin and Destination Count 13 — Washington Street, Harrison Avenue, Tyler, Hudson and Albany Streets (South of Kneeland)

Total Vehicles — 14,452

Between / and	**Back Bay**	Back Bay	Park Square	South End	Albany Street	**West Sector**	Cambridge	Fens	Brighton	Brookline	**Southwest Sector**	**South Sector**	South Boston	Roxbury	N. Dorchester
Central	**5,180**	119	318	4,298	76	**628**	13	167	109	280	**1,105**	**5,056**	547	1,296	288
Business	3,620	86	168	3,290	76	434	13	118	75	150	557	3,407	339	938	289
Market	292	4	51	237	—	33	—	—	—	33	122	319	34	143	18
Atlantic Avenue	410	—	70	340	—	111	—	33	25	53	36	357	105	96	29
Commercial Street	—	—	—	—	—	—	—	—	—	—	—	25	—	25	—
North Station	87	—	—	87	—	4	—	—	—	—	72	198	33	104	4
Haymarket	244	—	—	244	—	—	—	—	—	—	47	268	27	104	29
Beacon Hill	158	29	29	100	—	—	—	—	—	—	—	116	47	—	57
Back Bay	**233**	42	59	307	—	**216**	61	62	34	5	**29**	**307**	219	—	—
Back Bay	*	—	—	42	—	—	—	—	—	—	—	57	29	—	—
Park Square	*	—	4	55	—	12	8	4	—	—	4	74	29	29	9
South End	*	*	*	210	—	197	47	57	33	22	17	198	96	4	—
North Sector	**523**	12	12	472	14	**97**	—	86	—	—	**208**	**641**	94	270	49
East Boston	158	—	—	115	—	—	—	—	—	—	62	177	21	43	—
Charlestown	94	99	6	—	52	—	—	—	—	—	15	103	43	43	27
Chelsea	66	—	—	71	—	—	—	—	—	—	62	184	—	93	—
Everett	14	—	6	14	—	—	—	—	—	—	29	10	8	21	—
Northwest Sector	**157**	—	4	155	—	—	—	—	—	—	—	**53**	5	43	—
Somerville	75	—	—	76	—	—	—	—	—	—	—	43	8	35	—
West Sector	*	—	—	—	—	—	—	—	—	—	—	**19**	9	5	—
Cambridge	*	—	—	—	—	—	—	—	—	—	—	19	9	5	—

* Traffic given elsewhere in table.

Origin and Destination Count 14 — Broadway Bridge

Total Vehicles — 5,850

Between / and	South Sector	South Boston	North Dorchester	Roxbury	Boston Proper	Central	Back Bay	North Sector
South Sector	**178**	178	—	*	*	*	*	*
Roxbury	130	130	—	—	*	*	*	*
Southwest Sector	**83**	83	—	—	**59**	47	12	**36**
West Sector	**651**	639	—	—	**166**	166	—	—
Fens	95	95	—	—	47	47	—	—
Boston Proper	**3,185**	2,593	83	118	**83**	83	83	*
Central	2,309	1,823	83	118	*	—	83	*
Back Bay	876	770	—	—	*	*	—	*
Northwest Sector	**142**	130	—	—	**24**	24	—	—
North Sector	**1,148**	817	106	24	**95**	36	59	—

Origin and Destination Count 15 — Dorchester Avenue (South of Summer Street)

Total Vehicles — 12,212

Between / and	Central	Business	Atlantic Avenue	Back Bay	South End	West Sector	Cambridge	Fens	Brighton	Brookline	Southwest Sector	South Sector	South Boston	Roxbury	North Dorchester
Central	**217**	139	316	**387**	310	**214**	46	62	15	15	**247**	**6,653**	1,563	309	681
Business	124	31	*	170	155	46	—	31	—	—	155	3,816	907	126	341
Market	31	15	16	31	31	—	—	—	—	—	32	990	159	94	111
Atlantic Avenue	93	93	—	78	62	138	16	15	31	15	46	923	238	95	124
Commercial Street	—	—	—	16	16	—	—	—	—	—	—	48	—	16	32
North Station	207	—	207	31	31	—	—	—	—	—	15	172	16	—	31
Haymarket	—	—	—	15	15	16	—	—	16	—	16	421	78	15	62
Beacon Hill	—	—	—	—	—	15	—	—	—	15	—	106	31	—	15
Back Bay	*	*	*	—	—	—	—	—	—	—	—	**463**	294	—	15
Back Bay	—	—	—	—	—	—	—	—	—	—	—	31	31	—	—
Park Square	15	15	—	—	—	—	—	—	—	—	—	170	62	—	—
South End	*	*	*	—	—	30	—	—	—	15	—	280	265	—	—
Albany Street	16	—	16	—	—	—	—	—	—	—	—	—	—	—	—
North Sector	**75**	—	15	**169**	124	—	—	—	—	—	**15**	**1,943**	430	184	167
East Boston	15	—	15	46	47	—	—	—	—	—	—	246	31	77	46
Charlestown	15	—	—	—	—	—	—	—	—	—	—	214	46	15	15
Chelsea	15	—	—	46	47	—	—	—	—	—	—	291	77	62	15
Everett	—	—	—	—	15	—	—	—	—	—	15	308	62	15	15
Northwest Sector	**92**	—	61	—	—	—	—	—	—	—	—	**413**	123	15	15
Somerville	46	—	31	—	—	—	—	—	—	—	—	92	46	—	—
South Sector	*	*	*	*	*	**305**	30	46	62	62	**107**	**912**	912	263	31
South Boston	*	*	*	*	*	275	15	46	62	62	107	*	310	263	31

* Traffic is listed elsewhere in table.

ORIGIN AND DESTINATION COUNT 16 — SUMMER STREET BRIDGE

Total Vehicles — 5,257

Between / and	**South Sector**	South Boston	Roxbury	North Dorchester	**Central**	Atlantic Avenue
Central	**4,030**	3,481	97	65	—	—
Business	2,332	1,950	61	45	—	—
Market	377	331	—	—	—	—
Atlantic Avenue	912	820	30	16	—	—
Commercial Street	76	61	—	—	—	—
North Station	154	154	—	—	—	—
Haymarket	63	47	—	—	—	—
Beacon Hill	169	139	—	—	—	—
Back Bay	**631**	631	—	—	—	—
Back Bay	76	76	—	—	—	—
Park Square	137	137	—	—	—	—
South End	283	283	—	—	—	—
Albany Street	16	16	—	—	—	—
North Sector	**1,343**	1,231	—	—	—	—
East Boston	259	227	—	—	—	—
Charlestown	227	211	—	—	—	—
Chelsea	81	65	—	—	—	—
Everett	146	130	—	—	—	—
Northwest Sector	**551**	551	—	—	—	—
Somerville	211	211	—	—	—	—
West Sector	**1,861**	1,861	—	—	—	—
Cambridge	518	518	—	—	—	—
Fens	210	210	—	—	—	—
Brighton	291	291	—	—	—	—
Brookline	179	179	—	—	—	—
Southwest Sector	**227**	227	—	—	**16**	15
South Sector	**598**	*	194	49	*	*
South Boston	598	113	194	49	*	*

* Traffic is listed elsewhere in table.

ORIGIN AND DESTINATION COUNT 17 — CONGRESS STREET BRIDGE

Total Vehicles — 4,508

Between / and	**South Sector**	South Boston	Roxbury	North Dorchester	**Back Bay**
Central	**2,264**	2,250	—	—	**7**
Business	1,102	1,098	4	—	—
Market	220	216	—	—	—
Atlantic Avenue	515	511	—	—	—
Commerical Street	30	30	—	—	—
North Station	290	290	—	—	—
Haymarket	109	105	—	—	—
Beacon Hill	77	77	—	—	—
Back Bay	**409**	409	—	—	—
Back Bay	32	32	—	—	—
Park Square	132	132	—	—	—
South End	260	260	—	—	—
Albany Street	15	15	—	—	—
North Sector	**536**	536	—	—	—
East Boston	47	47	—	—	—
Charlestown	188	188	—	—	—
Chelsea	67	67	—	—	—
Everett	54	54	—	—	—
Northwest Sector	**186**	186	—	—	—
Somerville	100	100	—	—	—
West Sector	**618**	618	—	—	—
Cambridge	261	261	—	—	—
Fens	87	87	—	—	—
Brighton	47	47	—	—	—
Brookline	27	27	—	—	—
Southwest Sector	**113**	113	—	—	—
South Sector	**382**	*	80	20	—
South Boston	382	107	80	20	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 18 — Northern Avenue Bridge

Total Vehicles — 5,025

Between / and	South Sector	South Boston	Roxbury	North Dorchester	Back Bay	South End
Central	**3,516**	3,484	—	8	—	—
Business	915	873	—	13	—	—
Market	840	827	—	—	—	—
Atlantic Avenue	878	878	—	—	8	8
Commercial Street	131	131	—	—	—	—
North Station	160	160	—	—	—	—
Haymarket	187	187	—	—	—	—
Beacon Hill	186	186	—	—	—	—
Back Bay	**100**	100	—	—	—	—
Park Square	58	58	—	—	—	—
South End	62	62	—	—	—	—
North Sector	**738**	738	—	—	—	—
East Boston	108	108	—	—	—	—
Charlestown	249	249	—	—	—	—
Chelsea	116	116	—	—	—	—
Everett	66	66	—	—	—	—
Northwest Sector	**208**	208	—	—	—	—
Somerville	100	100	—	—	—	—
West Sector	**398**	398	—	—	—	—
Cambridge	257	257	—	—	—	—
Fens	17	17	—	—	—	—
Brighton	42	42	—	—	—	—
South Sector	**65**	*	25	8	—	—
South Boston	65	8	25	8	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 19 — South Ferry

Total Vehicles — 2,294

Between / and	North Sector	East Boston	Chelsea	Everett	Winthrop	Revere
Central	**1,124**	627	39	8	158	62
Business	402	195	14	1	82	21
Market	299	145	12	—	40	28
Atlantic Avenue	·193	105	7	2	24	5
Commercial Street	23	15	1	1	3	—
North Station	32	21	2	—	2	1
Haymarket	118	107	—	1	7	1
Beacon Hill	23	15	—	—	4	1
Back Bay	**185**	113	4	—	29	8
Back Bay	13	6	—	—	3	3
Park Square	48	28	2	—	9	1
South End	108	69	3	1	13	5
North Sector	**24**	24	—	—	—	—
Charlestown	24	24	—	—	—	—
Northwest Sector	**17**	17	—	—	—	—
Somerville	12	12	—	—	—	—
West Sector	**197**	164	2	—	23	1
Cambridge	45	45	—	—	—	—
Fens	47	35	—	—	7	—
Brighton	30	24	1	—	4	—
Brookline	27	18	—	—	8	—
Southwest Sector	**99**	69	—	—	12	4
South Sector	**648**	311	16	—	68	25
South Boston	266	151	10	—	32	22
Roxbury	126	96	5	—	16	1
North Dorchester	37	25	—	—	4	3

Origin and Destination Count 20 — North Ferry

Total Vehicles — 839

Between / and	North Sector	East Boston	Chelsea	Everett	Winthrop	Revere
Central	**415**	286	46	6	19	16
Business	97	85	1	—	3	6
Market	83	39	23	2	2	3
Atlantic Avenue	45	40	3	—	—	—
Commercial Street	36	21	7	—	2	2
North Station	27	22	—	—	—	2
Haymarket	91	68	8	2	2	2
Beacon Hill	34	18	5	—	6	—
Back Bay	**69**	49	7	—	6	3
Back Bay	7	5	2	—	—	—
Park Square	14	9	—	—	3	—
South End	31	23	3	2	—	3
Albany Street	3	3	—	—	—	—
North Sector	**19**	18	—	—	1	—
Charlestown	19	18	—	—	1	—
Northwest Sector	**20**	19	—	—	1	—
Somerville	17	16	—	—	1	—
West Sector	**86**	67	2	—	7	2
Cambridge	41	34	—	—	4	1
Fens	11	10	1	—	—	—
Brighton	6	1	—	—	—	1
Brookline	5	4	—	—	1	—
Southwest Sector	**25**	15	1	—	1	3
South Sector	**205**	156	31	—	6	5
South Boston	97	71	17	—	3	4
Roxbury	46	34	10	—	1	—
North Dorchester	14	13	1	—	—	—

Origin and Destination Count 21 — Atlantic Avenue (Near State Street)

Total Vehicles — 14,431

Between / and	Boston Proper	Central	Business	Market	Atlantic Avenue (north)	Commercial Street	North Station	Haymarket	Beacon Hill	North Sector	East Boston	Charlestown	Northwest Sector	Somerville	West Sector	Cambridge
Boston Proper	**3,424**	**3,424**	1,561	582	558	490	1,049	396	140	**2,412**	475	609	**429**	181	**722**	316
Central	*	**3,099**	1,561	489	512	444	979	326	140	**2,118**	362	518	**406**	181	**699**	316
Business	*	*	70	117	163	210	373	186	93	811	113	203	203	68	113	68
Market	*	*	*	23	23	47	—	—	—	23	—	—	—	—	45	—
Atlantic Avenue (central)	559	559	186	93	93	47	93	47	—	248	68	45	45	23	90	90
Atlantic Avenue (south)	1,165	1,165	93	163	163	140	466	93	47	1,036	181	270	158	90	135	90
North Station	*	*	*	—	47	—	—	—	—	—	—	—	—	—	*	—
Beacon Hill	*	*	*	—	23	—	—	—	—	—	—	—	—	—	—	—
Back Bay	**325**	**325**	—	93	46	46	70	70	—	**294**	113	91	**23**	—	**23**	—
Back Bay	—	—	—	—	—	—	—	—	—	45	—	23	—	—	—	—
Park Square	46	46	—	—	23	23	—	—	—	68	23	45	—	—	23	—
South End	209	209	—	70	23	23	70	23	—	113	45	23	23	—	—	—
Albany Street	70	70	—	23	—	—	—	47	—	68	45	—	—	—	—	—
West Sector	*	*	*	*	248	45	23	—	—	**115**	23	69	—	—	—	—
Fens	46	46	—	—	23	—	23	—	—	46	23	23	—	—	—	—
Southwest Sector	**226**	**226**	23	45	45	45	45	23	—	**136**	46	—	**23**	—	—	—
South Sector	**3,018**	**3,018**	450	856	608	248	540	248	68	**2,929**	653	978	**316**	113	**681**	270
Roxbury	226	226	23	113	45	—	45	—	—	293	68	180	—	—	—	—
North Dorchester	159	159	—	68	45	23	—	23	—	68	23	—	23	23	—	—
South Boston	1,913	1,913	225	495	405	180	360	180	68	1,847	406	540	270	90	338	203

Origin and Destination Count 22 — Devonshire Street (Between Adams Square and State Street)

Total Vehicles — 8,510

Between / and	Boston Proper	Central	Business	Market	Atlantic Avenue	Commercial Street	North Station	Haymarket	Beacon Hill	North Sector	East Boston	Charlestown	Northwest Sector	Somerville	West Sector	Cambridge
Boston Proper	**1,988**	**1,988**	1,544	39	521	19	637	560	154	**2,509**	19	502	**1,042**	386	*	695
Central	*	**1,901**	1,486	39	521	19	637	560	154	**2,239**	19	425	**1,003**	386	*	695
Business	*	*	386	19	135	—	309	521	116	1,949	19	386	792	309	*	579
Market	*	*	—	—	—	—	—	—	19	19	—	—	—	—	*	—
Atlantic Avenue	*	*	—	—	—	19	309	39	19	270	—	39	222	77	*	116
Back Bay	**97**	**97**	58	19	—	—	19	—	—	**270**	—	77	**39**	—	—	—
Back Bay	39	39	39	—	—	—	—	—	—	193	—	—	39	—	—	—
Park Square	19	19	—	19	—	—	—	—	—	—	—	—	—	—	—	—
South End	39	39	19	—	—	—	19	—	—	77	—	77	—	—	—	—
West Sector	**1,216**	**1,216**	1,042	19	135	—	—	19	—	—	—	—	—	—	—	—
Fens	39	39	19	—	—	—	—	19	—	—	—	—	—	—	—	—
Southwest Sector	**58**	**58**	—	—	—	19	19	19	—	**19**	—	19	**19**	19	—	—
South Sector	**675**	**675**	135	19	—	—	39	425	58	**598**	—	308	**222**	39	**154**	39
Roxbury	39	39	—	—	—	—	—	39	—	39	—	—	19	—	—	—
North Dorchester	39	39	19	—	—	—	—	19	—	—	—	—	19	19	—	—
South Boston	289	289	58	19	—	—	19	174	19	366	—	250	135	58	77	19

* Traffic is listed elsewhere in table.

Origin and Destination Count 23 — Congress Street (Between State and Water Streets)

Total Vehicles — 7,680

Between / and	**Boston Proper**	**Central**	Business	Market	Atlantic Avenue	Commercial Street	North Station	Haymarket	Beacon Hill	**Back Bay**	Back Bay	**North Sector**	East Boston	Charlestown	**Northwest Sector**	Somerville	**West Sector**	Cambridge
Boston Proper	**2,598**	**2,598**	1,751	240	890	28	720	339	396	*	56	**766**	42	226	**325**	184	*	325
Central	*	**2,245**	1,525	183	890	28	706	311	368	*	56	**650**	42	198	**311**	170	*	311
Business	*	*	480	127	155	28	282	240	212	*	56	565	42	155	282	141	*	268
Atlantic Avenue	*	*	*	56	14	—	424	71	155	—	—	85	—	42	28	28	*	42
Back Bay	**353**	**353**	226	56	—	—	14	28	28	—	—	**56**	—	28	**14**	14	**42**	14
Park Square	127	127	99	14	—	—	—	14	—	—	—	—	—	—	14	14	—	—
South End	170	170	71	42	—	—	14	14	28	—	—	42	—	28	—	—	42	14
Albany Street	—	—	—	—	—	—	—	—	—	—	—	14	—	—	—	—	—	—
West Sector	**847**	**805**	635	56	85	—	—	14	14	*	—	**28**	—	28	—	—	—	—
Fens	155	155	155	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Southwest Sector	85	85	56	14	—	—	—	—	14	—	—	—	—	—	—	—	—	—
South Sector	**1,949**	**1,920**	580	190	71	—	198	452	424	**28**	28	**635**	42	155	**254**	99	**254**	170
Roxbury	170	170	56	14	14	—	14	42	28	—	—	42	14	—	28	—	14	14
North Dorchester	170	170	56	—	14	—	28	28	42	—	—	42	—	14	—	—	—	—
South Boston	862	834	325	71	28	—	71	141	198	28	28	353	14	113	198	85	212	141

Origin and Destination Count 24 — Summer Street (at Washington Street)

Total Vehicles — 5,917

Between / and	**Boston Proper**	**Central**	Business	Market	Atlantic Avenue	Commercial Street	North Station	Haymarket	Beacon Hill	**Back Bay**	Back Bay	Park Square	South End	**North Sector**	East Boston	Charlestown	**Northwest Sector**	Somerville	**South Sector**	South Boston
Boston Proper	**2,130**	**2,111**	1,872	64	645	28	83	74	101	**755**	286	267	221	**461**	18	46	**313**	147	*	*
Central	*	**1,374**	1,291	55	525	9	83	74	92	**737**	267	267	202	**424**	9	46	**304**	138	*	*
Business	*	*	617	46	442	9	83	55	37	580	240	193	146	396	—	46	221	92	*	*
Atlantic Avenue	*	*	*	9	—	—	—	18	55	120	28	65	28	—	—	—	83	46	*	—
Beacon Hill	*	*	*	—	*	—	—	—	—	9	—	—	9	28	9	—	—	—	*	*
Back Bay	*	*	*	9	*	18	—	—	*	**18**	18	—	18	**37**	9	—	**9**	9	*	*
Park Square	*	*	*	9	*	—	—	—	—	—	—	—	—	18	—	—	—	—	*	*
South End	*	*	*	—	*	18	—	—	*	*	18	—	—	18	9	—	9	9	*	*
West Sector	**1,171**	**1,162**	958	55	147	—	—	—	—	**9**	—	—	9	**28**	—	—	—	—	**138**	138
Cambridge	304	294	248	9	37	—	—	—	—	9	—	—	9	—	—	—	—	—	55	55
Fens	175	175	129	9	37	—	—	—	—	—	—	—	—	—	—	—	—	—	9	9
Southwest Sector	**147**	**147**	138	—	37	—	—	—	9	—	—	—	—	**18**	—	—	**9**	—	**46**	46
South Sector	**1,300**	**1,217**	903	46	64	37	9	74	147	**83**	28	37	18	**83**	18	9	**46**	37	**28**	28
Roxbury	175	166	110	18	46	9	—	28	—	9	9	—	—	9	9	—	9	9	9	9
North Dorchester	110	101	83	—	—	9	—	—	9	9	9	—	—	—	—	—	—	—	—	—
South Boston	378	315	212	9	—	—	—	28	74	64	9	37	18	37	9	—	9	9	*	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 25— Washington Street (Between Winter Street and Temple Place)

Total Vehicles — 9,993

Between / and	**Boston Proper**	**Central**	Business (Tremont Street)	Business (Jordan's)	Business (Winter-Court)	Business (Kingston)	Business (Federal)	Business (Financial)	Business (Fort Hill)	Market	Atlantic Avenue	Commercial Street	North Station	Haymarket	Beacon Hill	**North Sector**	East Boston	Charlestown	**Northwest Sector**	Somerville	**West Sector**	Cambridge
Boston Proper	**3,714**	**3,714**	481	1,529	358	316	191	826	123	168	367	28	234	261	317	**274**	27	41	**206**	97	*	260
Central	*	**2,476**	386	1,198	179	207	82	413	69	82	234	28	124	179	220	**205**	13	27	**151**	69	*	260
Business (Tremont Street)	*	*	14	110	14	14	27	96	—	14	14	—	14	14	14	—	—	—	—	—	*	27
Business (South Washington Street)	*	451	27	41	27	27	14	165	—	41	41	—	27	41	—	27	—	—	—	—	55	55
Business (Jordan's)	*	*	*	69	138	69	41	138	55	27	124	14	83	124	96	151	—	27	151	69	*	137
Business (Kingston)	*	*	*	*	—	—	—	14	14	—	—	14	—	—	55	27	14	—	—	—	*	41
Atlantic Avenue	*	*	*	*	—	—	—	—	—	—	—	—	—	—	55	—	—	—	—	—	*	—
Back Bay	**1,788**	**1,788**	95	331	179	109	109	413	54	86	123	—	110	82	97	**69**	14	14	**55**	28	—	—
Back Bay	416	416	27	152	—	41	41	55	—	45	41	—	14	—	—	—	—	—	—	—	—	—
Park Square	728	728	27	138	55	41	27	234	27	—	55	—	69	41	14	41	14	—	41	14	—	—
South End	630	630	41	41	110	27	41	124	27	41	27	—	27	41	83	14	—	14	14	14	—	—
Albany Street	14	14	—	—	14	—	—	—	—	—	—	—	—	—	—	14	—	—	—	—	—	—
West Sector	**2,694**	**2,694**	69	633	124	288	247	687	151	82	124	14	55	110	55	**82**	27	14	**14**	14	—	—
Fens	425	425	14	82	27	55	41	110	41	14	—	—	14	—	27	27	14	—	—	—	—	—
Southwest Sector	**937**	**937**	28	166	96	69	27	249	41	55	110	—	41	41	14	**41**	14	—	—	—	—	—
South Sector	**1,261**	**1,261**	82	165	151	55	27	260	41	82	96	—	96	96	110	**137**	14	27	14	14	**151**	55
Roxbury	452	452	55	27	41	14	14	110	—	27	41	—	27	55	41	55	14	27	—	—	14	14
North Dorchester	28	28	—	—	14	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
South Boston	192	192	27	41	41	—	—	—	—	14	14	—	14	—	41	14	—	—	—	—	124	27

* Traffic is listed elsewhere in table.

Origin and Destination Count 26 — Tremont Street (Between Winter Street and Temple Place)

Total Vehicles — 13,613

Between / and	Boston Proper	Central	Business (southwest)	Business (northwest)	Business (southeast)	Business (northeast)	Market	Atlantic Avenue	Commercial Street	North Station	Haymarket	Beacon Hill	North Sector	East Boston	Charlestown	Northwest Sector	Somerville	West Sector	Cambridge
Boston Proper	**4,303**	**4,303**	1,136	1,375	150	537	418	210	45	851	314	553	**1,748**	117	143	**639**	247	**3,153**	568
Central	*	**1,286**	986	419	150	149	75	165	30	344	30	224	**521**	26	52	**260**	169	**2,684**	412
Business (southwest)	*	*	—	314	15	134	75	45	30	194	30	149	352	26	52	104	78	*	204
Business (northwest)	*	*	*	—	45	—	—	45	—	—	—	15	65	—	—	13	13	*	26
Business (southeast)	*	*	*	*	—	15	—	—	—	45	—	30	39	—	—	78	39	*	39
Business (northeast)	*	*	*	—	*	—	—	—	—	—	—	—	65	—	—	26	13	*	91
Atlantic Avenue	*	*	*	*	—	—	—	—	—	75	—	—	—	—	—	39	26	*	39
Beacon Hill	*	*	*	*	*	—	—	—	—	30	—	—	—	—	—	—	—	*	13
Back Bay	**3,017**	**3,017**	150	956	—	388	343	45	15	507	284	329	**1,227**	91	91	**379**	78	**469**	156
Back Bay	240	240	60	60	—	60	—	—	—	15	45	—	13	—	—	—	—	—	—
Park Square	1,866	1,866	45	642	—	268	164	30	—	373	105	239	783	26	78	261	—	339	104
South End	881	881	45	239	—	60	179	15	15	119	119	90	431	65	13	118	78	130	52
Albany Street	30	30	—	15	—	—	—	—	—	—	15	—	—	—	—	—	—	—	—
West Sector	*	*	535	674	118	600	222	52	—	104	144	235	**169**	26	—	**26**	13	—	—
Fens	274	274	—	118	—	78	26	—	—	26	13	13	52	—	—	13	13	—	—
Southwest Sector	**575**	**575**	13	144	13	118	144	—	—	—	65	78	**183**	26	13	**65**	13	—	—
South Sector	**1,892**	**1,892**	13	561	13	300	287	—	26	196	248	248	**586**	78	78	**144**	13	**136**	65
Roxbury	875	875	—	313	—	144	183	—	13	52	118	52	273	13	13	78	39	65	65
North Dorchester	117	117	—	52	—	13	13	—	—	26	13	—	—	—	—	—	—	—	—
South Boston	78	78	—	13	—	13	13	—	—	26	—	13	52	—	—	13	—	52	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 27 — Albany Street (East of Massachusetts Avenue)
Total Vehicles — 10,161

Between / and	South Sector	South Boston	Boston Proper	Central	Back Bay	Northwest Sector	North Sector
South Sector	478	478	6,153	3,161	2,992	108	678
South Boston	*	—	200	77	123	15	31
North Dorchester	—	—	678	385	293	15	46
Roxbury	108	108	2,575	1,449	1,126	46	278
South Dorchester	62	62	1,326	447	879	31	93
Boston Proper	*	*	385	231	385	62	108
Central	*	*	*	—	*	15	—
Back Bay	*	*	*	231	154	46	108
Southwest Sector	200	200	632	432	200	—	108
West Sector	370	355	848	463	385	—	31
Fens	93	93	308	247	62	—	31

Origin and Destination Count 28 — Massachusetts Avenue (East of Columbus Avenue)
Total Vehicles — 11,867

Between / and	Boston Proper	Central	Back Bay	Southwest Sector	Jamaica Plain	South Sector	Roxbury	North Dorchester	South Boston
Boston Proper	679	143	679	268	71	2,324	858	214	161
Central	*	—	143	125	36	358	161	—	—
Back Bay	*	*	536	143	36	1,967	698	214	161
South Sector	*	*	*	36	18	179	161	—	89
West Sector	2,092	430	1,662	125	54	4,232	984	805	644
Fens	787	161	626	54	36	1,716	268	376	214
Brookline	304	89	214	—	—	125	36	36	18
Brighton	214	89	125	18	—	161	18	36	89
Cambridge	358	—	358	54	18	1,377	483	197	197
Northwest Sector	250	—	250	18	—	948	304	161	89
North Sector	197	—	197	18	—	501	179	71	18

* Traffic is listed elsewhere in table.

Origin and Destination Count 29 — Columbus Avenue (East of Massachusetts Avenue)
Total Vehicles — 6,162

Between / and	North Sector	Northwest Sector	Boston Proper	Central	Back Bay	West Sector	Cambridge	South Sector	South Boston
West Sector	78	16	1,556	420	1,136	47	47	202	93
Fens	31	16	576	140	436	16	16	31	31
Brookline	16	—	358	140	218	16	16	31	31
Brighton	16	—	140	47	93	—	—	16	16
Boston Proper	93	62	1,011	358	*	*	171	*	31
Back Bay	93	62	1,011	358	654	*	171	*	31
Southwest Sector	93	16	607	265	342	47	47	16	16
Jamaica Plain	16	—	202	109	93	16	16	—	—
South Sector	358	31	1,898	903	995	*	78	31	31
Roxbury	264	16	1,136	591	545	31	31	16	16

Origin and Destination Count 30 — Huntington Avenue (East of Massachusetts Avenue)
Total Vehicles — 8,457

Between / and	North Sector	Boston Proper	Central	Back Bay	South Sector	South Boston
Northwest Sector	—	67	17	50	—	—
West Sector	284	3,686	1,518	2,168	50	50
Cambridge	—	117	50	67	—	—
Fens	200	1,668	668	1,000	33	33
Brookline	50	1,000	451	551	—	—
Brighton	—	150	50	100	17	17
Boston Proper	50	767	284	*	*	—
Back Bay	50	767	284	484	*	—
Southwest Sector	183	1,751	819	935	17	17
Jamaica Plain	50	767	334	434	17	17
South Sector	134	1,468	534	935	—	—
Roxbury	17	567	234	334	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 31 — Boylston Street (East of Massachusetts Avenue)

Total Vehicles — 7,338

and \ Between	North Sector	Boston Proper	Central	Back Bay	South Sector	South Boston
Northwest Sector	—	**90**	18	72	—	—
West Sector	**108**	**4,341**	2,081	2,260	**198**	198
Cambridge	—	269	108	162	54	54
Fens	90	1,758	826	934	72	72
Brookline	18	1,094	502	592	36	36
Brighton	—	269	126	143	—	—
Boston Proper	**108**	**1,238**	592	*	*	54
Back Bay	108	1,238	592	646	*	54
Southwest Sector	**54**	**717**	323	395	—	—
Jamaica Plain	—	269	108	162	—	—
South Sector	**18**	**466**	36	430	—	—
Roxbury	18	144	36	108	—	—

Origin and Destination Count 32 — Commonwealth Avenue (West of Massachusetts Avenue)

Total Vehicles — 21,681

and \ Between	West Sector	Cambridge	Fens	Brighton	Brookline	Boston Proper	Central	Back Bay	Northwest Sector	North Sector
West Sector	**388**	83	360	55	28	**16,701**	8,240	8,461	**194**	**387**
Cambridge	*	—	55	—	28	470	138	332	—	—
Fens	*	*	83	*	*	2,323	1,382	940	194	55
Brighton	*	—	55	—	—	2,406	1,189	1,217	—	138
Brookline	*	*	28	—	—	4,922	2,378	2,544	—	111
Southwest Sector	**28**	28	—	—	—	**1,355**	636	719	**83**	**83**
Jamaica Plain	28	28	—	—	—	387	194	194	28	—
South Sector	**1,023**	—	360	166	138	**719**	194	526	**28**	**28**
Roxbury	111	—	55	—	28	111	55	55	—	28
Boston Proper	*	*	*	*	*	—	—	—	**664**	—
Central	*	*	*	*	*	—	—	—	166	—
Back Bay	*	*	*	*	*	—	—	—	498	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 33 — Massachusetts Avenue (Harvard Bridge)

Total Vehicles — 17,510

and \ Between	North Sector	Northwest Sector	Somerville	West Sector	Cambridge	Boston Proper	Central
West Sector	683	**551**	176	**1,686**	1,488	*	*
Fens	507	418	154	1,256	1,080	—	—
Southwest Sector	**176**	**187**	44	**529**	495	**22**	22
Jamaica Plain	22	44	22	176	176	—	—
South Sector	**650**	**738**	418	**2,579**	2,094	**44**	44
Roxbury	154	287	187	738	650	11	11
North Dorchester	55	66	55	176	143	—	—
South Boston	11	33	11	298	198	—	—
Boston Proper	**970**	**1,598**	771	**7,097**	4,981	—	—
Central	221	474	275	3,108	2,160	—	—
Back Bay	749	1,124	496	3,989	2,821	—	—

Origin and Destination Count 34 — Beacon Street (East of Governor Square)

Total Vehicles — 9,586

and \ Between	North Sector	Northwest Sector	Somerville	West Sector	Cambridge	Fens	Brighton	Brookline	Southwest Sector	Jamaica Plain
North Sector	—	—	—	**1,381**	—	674	183	342	**103**	23
Northwest Sector	—	—	—	**422**	—	342	11	68	**57**	11
Somerville	—	—	—	183	—	137	11	34	11	11
West Sector	*	*	*	**2,624**	1,575	1,883	297	662	**262**	91
Cambridge	—	—	—	*	—	834	126	434	171	57
Fens	*	*	*	*	*	377	171	228	80	34
Boston Proper	—	**46**	11	**3,834**	114	902	628	810	**206**	57
Central	—	46	11	2,978	57	662	468	628	183	57
Back Bay	—	—	—	856	57	240	160	183	23	—
South Sector	**23**	**46**	23	**571**	68	183	160	23	**11**	11
Roxbury	—	34	23	137	46	34	23	11	—	—
South Boston	—	—	—	228	11	91	68	—	11	11

* Traffic is listed elsewhere in table.

Origin and Destination Count 35 — Commonwealth Avenue (East of Governor Square)

Total Vehicles — 24,041

Between / and	North Sector	Northwest Sector	Somerville	West Sector	Cambridge	Fens	Brighton	Brookline	Southwest Sector	Jamaica Plain
North Sector	—	—	—	**1,280**	22	157	696	90	**22**	22
Northwest Sector	—	—	—	**652**	—	180	382	45	**45**	—
Somerville	—	—	—	314	—	90	157	22	—	—
West Sector	*	*	*	**3,123**	1,370	2,179	1,348	449	**157**	112
Cambridge	—	—	—	*	—	494	517	180	—	—
Fens	*	*	*	*	*	247	764	—	90	45
Boston Proper	—	**180**	67	**15,235**	472	1,146	5,056	2,606	**404**	22
Central	—	—	—	7,190	157	539	2,516	1,236	180	22
Back Bay	—	180	67	8,043	314	606	2,539	1,370	224	—
South Sector	—	**90**	22	**2,853**	202	427	1,348	224	—	—
Roxbury	—	—	—	876	45	180	382	90	—	—
South Boston	—	—	—	562	—	—	404	67	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 36 — Brookline Avenue (South of Governor Square)

Total Vehicles — 9,481

Between / and	West Sector	Fens	Brighton	Brookline	Southwest Sector	Jamaica Plain
North Sector	**516**	238	39	198	**258**	20
Northwest Sector	**337**	277	—	39	—	—
West Sector	**1,765**	1,527	—	—	**654**	158
Fens	*	357	39	575	238	59
Cambridge	496	278	—	218	—	—
Boston Proper	**4,047**	754	278	1,646	**1,190**	377
Central	2,559	436	198	1,210	774	257
Back Bay	1,488	317	79	436	416	119
South Sector	**714**	238	139	79	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 37 — Jamaicaway (South of Huntington Avenue)

Total Vehicles — 10,368

Between / and	West Sector	Fens	Brookline	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	Hyde Park	South Sector	Roxbury	Mattapan
North Sector	**23**	—	—	**706**	232	47	54	54	**372**	—	93
Northwest Sector	**39**	8	16	**326**	140	23	62	8	**272**	—	78
West Sector	**108**	*	*	**2,140**	953	132	372	194	**1,194**	16	240
Cambridge	39	—	16	790	357	85	124	78	450	—	85
Brighton	—	—	—	210	108	—	23	16	171	—	23
Brookline	62	23	8	326	225	8	39	16	232	8	47
Fens	54	—	*	496	155	31	124	62	202	8	62
Boston Proper	**209**	8	70	**3,319**	984	403	620	225	**1,497**	—	186
Central	93	8	31	1,628	550	202	318	140	690	—	124
Back Bay	116	—	39	1,690	434	202	302	85	806	—	62
South Sector	*	*	*	**163**	62	39	23	—	—	—	—
Roxbury	*	*	*	108	47	39	16	—	—	—	—
South Boston	*	*	*	47	16	—	—	—	—	—	—

Origin and Destination Count 38 — Huntington Avenue (West of Jamaicaway)

Total Vehicles — 8,657

Between / and	North Sector	Northwest Sector	Somerville	West Sector	Cambridge	Watertown	Brighton	Brookline	Fens	Boston Proper	Central	Back Bay
Boston Proper	—	**17**	—	**1,833**	26	9	86	946	17	—	—	—
Central	—	—	—	869	—	—	43	490	—	—	—	—
Back Bay	—	17	—	964	26	9	43	456	17	—	—	—
West Sector	**103**	**69**	34	**973**	103	34	103	602	843	*	*	*
Fens	43	17	9	*	26	34	60	491	9	*	—	*
Brookline	43	52	26	*	43	—	43	9	*	*	*	*
Southwest Sector	**69**	**69**	17	**1,205**	77	52	138	447	215	**250**	112	138
Jamaica Plain	26	17	9	715	26	43	86	310	86	26	—	26
Roslindale	9	—	—	43	9	—	—	17	17	9	—	9
West Roxbury	—	17	—	232	17	9	17	43	69	103	69	34
South Sector	**34**	**86**	43	**3,949**	103	163	542	1,936	172	—	—	—
Roxbury	26	34	17	2,125	43	52	292	1,195	69	—	—	—
North Dorchester	—	17	17	525	26	43	86	241	17	—	—	—
South Dorchester	—	9	—	258	—	26	60	120	26	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 39 — Longwood Avenue (West of Riverway)

Total Vehicles — 7,410

Between / and	Northwest Sector	West Sector	Fens	Brighton	Brookline	Cambridge	Southwest Sector
North Sector	—	**143**	45	—	89	—	—
West Sector	**178**	**2,194**	1,596	98	1,516	508	*
Fens	89	*	36	—	936	267	*
Brookline	62	1,712	*	62	196	223	*
Boston Proper	**27**	**802**	53	18	428	27	**98**
Central	9	606	53	18	428	—	89
Back Bay	17	196	—	—	—	27	9
Southwest Sector	**276**	**1,106**	45	26	428	472	—
Jamaica Plain	116	428	26	26	160	160	—
Roslindale	9	116	—	—	53	62	—
West Roxbury	26	135	—	—	26	80	—
South Sector	**553**	**2,033**	116	160	794	544	—
Roxbury	71	722	27	89	294	142	—

Origin and Destination Count 40 — Temporary Bridge (at Ashby Street)

Total Vehicles — 13,166

Between / and	West Sector	Cambridge	Northwest Sector	Somerville	North Sector	Boston Proper	Central	Back Bay
West Sector	**3,527**	2,841	**1,309**	575	**1,133**	**2,633**	1,005	1,628
Cambridge	*	—	—	—	—	1,436	447	990
Fens	1,931	1,404	92[illegible]	399	431	—	—	—
Brighton	239	192	80	16	160	80	80	—
Brookline	766	654	256	144	399	32	32	—
Southwest Sector	**958**	894	**239**	112	**271**	**16**	16	—
Jamaica Plain	192	176	112	80	96	16	16	—
South Sector	**1,452**	1,229	**415**	192	**303**	—	—	—
Roxbury	495	463	32	16	48	—	—	—
Boston Proper	*	*	**830**	207	**80**	—	—	—
Central	*	*	367	80	32	—	—	—
Back Bay	*	*	463	128	48	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 41 — Harvard Avenue (South of Commonwealth Avenue)

Total Vehicles — 7,301

Between / and	North Sector	Northwest Sector	West Sector	Cambridge	Watertown	Brighton	Newton	Brookline
Boston Proper	—	**24**	**758**	48	42	297	67	250
Central	—	12	461	30	18	164	42	151
Back Bay	—	12	297	18	24	133	24	79
South Sector	**12**	**97**	**1,448**	170	85	788	79	48
Roxbury	6	18	588	85	48	303	24	18
Southwest Sector	**12**	**133**	**739**	139	61	382	18	30
Jamaica Plain	6	55	406	79	36	212	12	6
West Sector	**260**	**333**	**3,485**	788	182	1,903	297	2,618
Fens	—	30	370	24	18	133	42	109
Brookline	145	242	*	588	121	1,212	145	42
Brighton	97	36	*	127	42	272	61	*
Newton	12	6	*	48	—	*	—	*

Origin and Destination Count 42 — Washington Street — Brighton (East of Commonwealth Avenue)

Total Vehicles — 3,676

Between / and	North Sector	Northwest Sector	West Sector	Cambridge	Watertown	Newton	Brighton
Boston Proper	—	**9**	**562**	—	23	61	281
Central	—	9	464	—	23	47	225
Back Bay	—	—	98	—	—	14	56
West Sector	**47**	**80**	**1,700**	202	89	248	1,195
Brighton	14	19	*	5	5	23	159
Brookline	28	61	1,428	197	84	220	768
Southwest Sector	—	**5**	**323**	33	28	23	197
Jamaica Plain	—	5	155	19	14	23	94
South Sector	—	**14**	**941**	14	117	202	460

* Traffic is listed elsewhere in table.

Origin and Destination Count 43 — Chestnut Hill Avenue (South of Cleveland Circle)

Total Vehicles — 2,401

Between / and	North Sector	Northwest Sector	West Sector	Cambridge	Watertown	Newton	Brighton	Brookline
Boston Proper	—	—	**173**	—	—	54	66	42
Central	—	—	137	—	—	36	54	42
Back Bay	—	—	36	—	—	18	12	—
West Sector	**54**	**36**	**905**	137	54	500	340	667
Newton	18	18	*	30	18	36	131	185
Brookline	36	18	*	107	6	*	209	42
Southwest Sector	**6**	**6**	**590**	149	66	137	185	6
Jamaica Plain	—	—	214	42	18	71	77	—
Roslindale	—	—	30	—	6	6	18	—
West Roxbury	6	6	238	42	36	42	77	6
South Sector	—	**18**	**625**	77	83	155	202	42

Origin and Destination Count 44 — Beacon Street (West of Cleveland Circle)

Total Vehicles — 5,656

Between / and	West Sector	Fens	Brighton	Brookline	Cambridge	Newton	Southwest Sector
North Sector	**389**	—	—	—	—	218	**14**
Northwest Sector	**77**	—	4	14	—	40	**4**
West Sector	**2,348**	188	255	1,072	844	1,719	**77**
Fens	*	—	4	—	—	97	4
Brighton	258	*	4	6	—	187	23
Brookline	1,049	—	*	23	4	791	37
Boston Proper	**2,472**	—	—	33	—	1,544	**57**
Central	1,246	—	—	20	—	783	37
Back Bay	1,226	—	—	13	—	761	20
Southwest Sector	*	*	*	*	*	10	—
South Sector	**218**	—	4	—	—	156	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 45 — Chestnut Hill Avenue (North of Cleveland Circle)

Total Vehicles — 4,209

Between / and	West Sector	Brighton	Brookline	Newton	Watertown	Cambridge
North Sector	**62**	3	16	36	—	—
Northwest Sector	**68**	—	45	19	—	—
West Sector	**2,056**	359	1,393	1,330	49	215
Brighton	*	6	248	49	—	3
Waltham	3	—	32	—	—	3
Boston Proper	**1,193**	55	58	811	3	—
Central	497	32	16	346	—	—
Back Bay	696	22	42	464	3	—
Southwest Sector	**232**	45	6	81	36	23
South Sector	**598**	88	19	372	36	—

Origin and Destination Count 46 — Commonwealth Avenue (East of Lake Street)

Total Vehicles — 5,696

Between / and	West Sector	Fens	Brighton	Brookline	Cambridge	Newton	Southwest Sector
North Sector	**222**	—	20	—	—	109	—
Northwest Sector	**99**	—	5	—	—	69	—
West Sector	**2,880**	598	1,052	1,057	321	1,912	**178**
Fens	*	—	69	—	—	366	—
Brighton	*	*	59	94	5	613	49
Brookline	*	—	*	—	—	691	—
Boston Proper	**1,862**	—	64	—	—	1,175	**10**
Central	983	—	30	—	—	701	5
Back Bay	879	—	34	—	—	474	5
Southwest Sector	*	—	*	—	—	94	—
South Sector	**445**	—	39	—	—	237	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 47 — Washington Street (West of Chestnut Hill Avenue)

Total Vehicles — 5,882

Between / and	West Sector	Fens	Brighton	Brookline	Cambridge	Newton
North Sector	**229**	—	99	—	—	99
Northwest Sector	**153**	7	84	15	—	46
West Sector	**3,278**	544	2,244	658	413	1,355
Fens	*	*	222	—	—	222
Brighton	*	*	743	168	168	620
Brookline	*	—	*	—	46	—
Boston Proper	**1,258**	—	337	—	—	674
Central	735	—	214	—	—	383
Back Bay	520	—	352	—	—	291
Southwest Sector	**306**	—	107	—	15	99
South Sector	**658**	—	260	—	—	229

Origin and Destination Count 48 — North Beacon Street (West of Market Street)

Total Vehicles — 8,027

Between / and	Northwest Sector	West Sector	Brighton	Newton	Watertown	Belmont	Waltham
North Sector	—	**269**	33	52	39	—	20
Northwest Sector	—	**177**	66	66	6	—	26
West Sector	*	**3,627**	1.715	709	1,300	138	558
Cambridge	—	598	85	256	125	—	33
Brighton	*	*	197	249	624	—	289
Brookline	6	512	20	59	223	85	39
Fens	—	985	72	138	328	52	197
Boston Proper	—	**2,693**	92	519	604	79	571
Central	—	1,629	53	262	387	46	387
Back Bay	—	1,064	39	256	216	33	184
Southwest Sector	—	**269**	19	13	92	46	39
South Sector	—	**992**	66	53	361	105	223

* Traffic is listed elsewhere in table.

Origin and Destination Count 49 — Cambridge Street Bridge

Total Vehicles — 2,749

Between / and	West Sector	Watertown	Brighton	Newton	Brookline	Southwest Sector
North Sector	**706**	—	344	167	128	**10**
Charlestown	137	—	98	39	—	—
Northwest Sector	**236**	20	128	10	20	—
Somerville	177	20	108	—	20	—
West Sector	**1,385**	88	805	167	216	**49**
Cambridge	1,208	88	678	167	187	49
Fens	69	—	29	—	—	—
Boston Proper	**285**	20	167	39	49	—
Central	285	20	167	39	49	—
South Sector	78	—	29	—	—	—

Origin and Destination Count 50 — Western Avenue Bridge

Total Vehicles — 2,369

Between / and	West Sector	Watertown	Brighton	Newton	Brookline	Southwest Sector
North Sector	**397**	41	178	57	77	8
Charlestown	101	20	45	16	16	4
Northwest Sector	**150**	8	69	16	28	8
Somerville	117	8	53	12	16	8
West Sector	**1,564**	235	745	227	210	—
Cambridge	1,520	223	720	227	210	—
Fens	65	4	8	—	—	—
Boston Proper	**210**	24	109	28	20	—
Central	210	24	109	27	20	—
South Sector	**32**	4	24	—	—	—

Origin and Destination Count 51 — Western Avenue (West of Market Street)

Total Vehicles — 2,125

Between / and	West Sector	Brighton	Brookline	Newton	Watertown	Cambridge
North Sector	**138**	30	—	23	54	—
Northwest Sector	**178**	54	—	50	71	—
West Sector	**1,315**	330	77	320	524	787
Brighton	*	91	20	27	70	54
Waltham	134	17	7	—	—	94
Boston Proper	**373**	50	—	104	44	—
Central	259	40	—	70	27	—
Back Bay	114	10	—	33	17	—
Southwest Sector	**50**	7	—	—	—	—
South Sector	**71**	17	—	3	37	—

Origin and Destination Count 52 — Chestnut Street (North of Perkins Street)

Total Vehicles — 2,678

Between / and	West Sector	Newton	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	South Sector	Roxbury	Mattapan
North Sector	8	—	**14**	3	—	1	—	—	—
Northwest Sector	—	—	**39**	12	5	5	**24**	—	—
West Sector	40	11	**1,073**	616	119	129	**1,220**	207	99
Fens	10	7	26	26	—	—	—	—	—
Brookline	22	—	574	331	60	86	577	107	51
Brighton	—	—	201	104	25	22	243	28	25
Newton	11	—	61	56	3	3	154	46	11
Boston Proper	56	7	**175**	53	15	41	—	—	—
Central	43	4	146	39	15	39	—	—	—
Back Bay	13	3	29	13	—	3	—	—	—
Southwest Sector	*	*	**8**	8	—	1	**21**	11	1
Jamaica Plain	*	*	*	3	—	1	10	5	1
South Sector	*	*	*	*	—	—	—	—	—
Roxbury	*	*	*	*	—	5	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 53 — Perkins Street (West of Prince Street)

Total Vehicles — 1,071

Between / and	West Sector	Brighton	Brookline	Newton	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury
North Sector	**7**	—	4	—	**9**	—	2	6
Northwest Sector	—	—	—	—	4	—	2	2
West Sector	**103**	6	83	24	**223**	140	9	50
Fens	31	—	17	9	37	2	—	26
Boston Proper	**197**	—	107	28	**278**	4	7	114
Central	94	—	53	15	111	—	—	50
Back Bay	103	—	54	13	168	4	7	65
Southwest Sector	*	17	98	41	**18**	18	—	13
Jamaica Plain	*	13	70	41	18	—	—	13
South Sector	**197**	28	72	68	**35**	4	—	26
Roxbury	39	6	17	9	11	—	—	7
Mattapan	7	—	—	6	2	2	—	—

Origin and Destination Count 54 — Centre Street (South of Arborway)

Total Vehicles — 7,404

Between / and	West Sector	Brookline	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	Hyde Park	South Sector
North Sector	**44**	—	**516**	9	9	135	13	**9**
Northwest Sector	**17**	—	**328**	9	17	105	—	**9**
West Sector	**170**	70	**1,779**	79	100	669	35	**192**
Brighton	4	—	131	—	13	61	—	9
Fens	79	—	485	17	26	206	13	13
Brookline	*	—	530	9	31	227	4	26
Boston Proper	**350**	9	**2,740**	52	92	965	13	**48**
Central	162	4	1,543	43	43	520	13	22
Back Bay	188	4	1,197	9	48	445	—	26
Southwest Sector	*	*	**555**	555	39	328	17	**647**
Jamaica Plain	*	*	*	87	39	328	17	31
South Sector	*	*	*	*	43	384	9	**9**
Roxbury	43	—	336	22	22	227	4	9

* Traffic is listed elsewhere in table.

Origin and Destination Count 55 — Arborway (East of Washington Street)

Total Vehicles — 10,240

Between / and	South Sector	South Boston	Roxbury	North Dorchester	South Dorchester	Mattapan	Milton	Southwest Sector	Jamaica Plain	West Roxbury	Hyde Park
North Sector	565	—	—	—	21	32	71	25	11	—	7
Northwest Sector	468	—	—	—	32	61	61	11	7	—	3
West Sector	4,972	32	—	68	457	622	1,159	159	104	7	25
Brookline	1,188	—	—	—	115	112	162	21	11	—	11
Fens	227	—	—	4	47	—	54	7	7	—	—
Boston Proper	2,754	—	—	—	198	389	659	148	40	4	47
Central	965	—	—	—	65	141	209	61	15	4	14
Back Bay	1,789	—	—	—	133	248	450	87	25	—	33
Southwest Sector	1,048	151	54	122	194	238	68	47	47	*	*
Jamaica Plain	551	29	14	29	58	130	68	*	11	*	*
Roslindale	65	14	4	18	18	25	—	—	—	—	—
West Roxbury	36	14	—	4	7	11	—	7	7	—	—
Hyde Park	101	29	11	7	31	22	—	14	14	—	—
South Sector	43	7	36	—	—	—	*	*	*	*	*
Milton	7	4	4	—	—	—	—	*	*	—	—

Origin and Destination Count 56 — Washington Street (South of Arborway)

Total Vehicles — 8,925

Between / and	West Sector	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	Hyde Park	Dedham	South Sector
North Sector	6	410	45	51	62	67	39	6
Northwest Sector	—	298	39	22	34	95	28	28
West Sector	6	1,332	292	315	242	331	56	309
Fens	—	264	28	62	90	62	6	28
Brookline	—	50	84	56	39	56	—	45
Boston Proper	50	2,844	225	581	624	489	365	135
Central	22	1,664	118	320	298	332	202	73
Back Bay	28	1,180	107	264	226	157	163	62
Southwest Sector	*	1,242	1,191	—	—	—	—	2,203
Jamaica Plain	*	*	259	377	270	191	84	365
South Sector	*	*	*	478	680	292	219	56
Roxbury	22	1,057	118	264	331	180	73	56
Mattapan	135	242	124	28	62	—	28	45

* Traffic is listed elsewhere in table.

Origin and Destination Count 57 — Centre Street (South of La Grange Street)

Total Vehicles — 6,845

Between / and	West Sector	Needham	Southwest Sector	West Roxbury	Dedham	Westwood	Norwood
North Sector	81	81	652	62	155	19	34
Northwest Sector	8	4	291	15	69	7	38
West Sector	175	162	1,688	228	473	46	85
Fens	19	19	283	11	42	15	23
Brookline	31	27	248	27	100	3	34
Boston Proper	349	287	2,278	221	799	100	221
Central	147	131	1,121	135	411	46	143
Back Bay	201	155	1,156	85	388	54	77
Southwest Sector	*	120	834	446	267	19	38
Jamaica Plain	112	85	426	147	163	19	38
Roslindale	19	19	136	93	42	—	—
West Roxbury	15	15	229	166	62	—	—
South Sector	113	73	376	155	101	8	31
Roxbury	23	23	143	50	46	4	—
Mattapan	4	4	27	8	19	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 58 — Washington Street (South of West Roxbury Parkway)

Total Vehicles — 3,153

Between / and	Southwest Sector	West Roxbury	Hyde Park	Dedham	Westwood	Norwood
North Sector	**167**	—	4	11	—	27
Northwest Sector	**57**	11	8	11	4	—
West Sector	**360**	72	8	155	11	27
Brookline	38	15	—	15	—	—
Boston Proper	**1,035**	114	4	330	30	144
Central	629	76	—	159	15	80
Back Bay	405	38	4	171	15	64
Southwest Sector	**992**	493	38	458	19	68
Jamaica Plain	458	121	—	235	8	45
Roslindale	349	133	15	136	8	19
West Roxbury	*	61	15	83	4	—
South Sector	**542**	118	8	178	19	61
Mattapan	30	11	—	11	—	—

Origin and Destination Count 59 — North Branch of Turtle Pond Road (East of Washington Street)

Total Vehicles — 559

Between / and	Southwest Sector	West Roxbury	Hyde Park	Dedham	South Sector	Mattapan	Milton
North Sector	7	—	4	4	—	—	—
Northwest Sector	**11**	—	7	4	—	—	—
West Sector	**115**	—	104	11	78	7	22
Newton	52	—	52	—	37	4	7
Brookline	15	—	11	4	7	—	4
Boston Proper	**70**	4	41	26	**11**	—	11
Central	37	—	22	15	4	—	4
Back Bay	33	4	19	11	7	—	7
Southwest Sector	**182**	11	137	41	85	22	19
Jamaica Plain	37	—	22	15	4	—	—
Roslindale	70	—	52	15	11	—	4
West Roxbury	*	—	63	11	45	19	11

* Traffic is listed elsewhere in table.

Origin and Destination Count 60 — Hyde Park Avenue (North of River Street)

Total Vehicles — 2,589

Between / and	Southwest Sector	West Roxbury	Hyde Park	Dedham	Westwood	Norwood	South Sector	Canton	Milton
North Sector	**79**	—	74	3	—	—	—	—	—
Northwest Sector	**44**	—	41	—	—	—	**3**	—	—
West Sector	**276**	—	262	6	—	6	**32**	9	6
Newton	9	—	9	—	—	—	3	—	—
Brookline	41	—	35	6	—	—	3	—	—
Boston Proper	**297**	—	238	38	—	6	**32**	9	9
Central	235	—	182	32	—	6	18	6	3
Back Bay	62	—	56	6	—	—	15	3	6
Southwest Sector	**1,185**	74	1,123	141	9	24	**620**	18	74
Jamaica Plain	194	—	153	35	3	—	35	6	15
Roslindale	144	3	123	12	3	3	15	3	—
West Roxbury	*	—	71	—	—	—	9	—	3
Hyde Park	*	*	650	94	3	21	467	9	53
South Sector	*	*	*	56	12	9	**21**	9	3
Roxbury	147	—	126	15	—	3	18	6	3
Mattapan	118	3	85	12	12	6	3	3	—

Origin and Destination Count 61 — River Street (East of Hyde Park Avenue)

Total Vehicles — 2,592

Between / and	Boston Proper	Central	Back Bay	Southwest Sector	Hyde Park	South Sector	Mattapan	Milton
North Sector	—	—	—	**27**	18	**5**	—	2
Northwest Sector	—	—	—	**18**	16	—	—	—
West Sector	—	—	—	**115**	111	**53**	16	9
Newton	—	—	—	23	23	9	5	—
Needham	—	—	—	12	12	5	2	—
Boston Proper	—	—	—	*	*	**12**	—	7
Central	—	—	—	*	*	7	—	2
Back Bay	—	—	—	*	*	5	—	5
Southwest Sector	**97**	53	44	**1,410**	1,408	**843**	424	143
Jamaica Plain	—	—	—	53	51	5	—	2
Roslindale	—	—	—	32	32	18	9	2
West Roxbury	—	—	—	60	60	41	7	14
Hyde Park	85	46	39	*	1,007	633	297	104
Dedham	5	2	2	204	204	129	78	9
Westwood	—	—	—	9	9	2	—	2
South Sector	*	*	*	*	*	**12**	12	12

* Traffic is listed elsewhere in table.

Origin and Destination Count 62 — Tremont Street (West of Roxbury Crossing)

Total Vehicles — 4,485

Between / and	North Sector	Northwest Sector	West Sector	Fens	Brighton	Brookline	Boston Proper	Central	Back Bay	South Sector	South Boston
North Sector	—	—	**41**	21	—	16	—	—	—	*	—
Boston Proper	—	—	**637**	177	53	222	—	—	—	*	—
Central	—	—	238	82	12	86	—	—	—	*	—
Back Bay	—	—	398	95	41	135	—	—	—	*	—
Southwest Sector	**16**	**12**	**205**	99	12	53	**57**	21	37	86	12
Jamaica Plain	8	8	156	78	8	33	29	21	8	29	12
South Sector	**74**	**70**	**3,061**	998	300	932	**214**	62	152	**12**	*
South Boston	—	—	197	82	12	49	—	—	—	12	—
Roxbury	45	53	2,069	641	214	678	148	58	90	12	12
North Dorchester	8	4	279	99	29	70	21	—	21	—	—
South Dorchester	8	8	205	74	21	62	12	4	8	—	—

Origin and Destination Count 63 — Centre Street (Southwest of Columbus Avenue)

Total Vehicles — 4,469

Between / and	West Sector	Brookline	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	South Sector	Roxbury
North Sector	6	—	**353**	248	31	43	**12**	12
Northwest Sector	—	—	**136**	68	6	31	**12**	12
West Sector	6	6	**335**	242	37	31	**304**	236
Fens	6	6	74	68	—	—	—	—
Brighton	—	—	81	81	—	—	68	68
Brookline	6	—	12	6	6	—	118	—
Boston Proper	**81**	12	**1,209**	818	56	136	**62**	56
Central	37	6	744	502	37	99	31	31
Back Bay	43	6	465	316	19	37	31	25
South Sector	*	*	**1,817**	1,513	81	149	**136**	136
Roxbury	*	—	1,420	1,178	43	136	136	93
North Dorchester	19	19	161	143	19	—	—	—
South Boston	—	—	87	43	—	—	19	19

* Traffic is listed elsewhere in table.

Origin and Destination Count 64 — Washington Street (South of Egleston Square)

Total Vehicles — 4,765

Between / and	West Sector	Southwest Sector	Jamaica Plain	Roslindale	West Roxbury	Hyde Park	South Sector	Mattapan
North Sector	—	**432**	113	46	41	67	**20**	10
Northwest Sector	—	**133**	46	10	10	31	**41**	15
West Sector	—	**467**	246	51	10	67	**56**	—
Cambridge	—	200	92	26	5	26	10	—
Fens	—	159	97	15	5	10	10	—
Brookline	—	36	26	—	—	5	15	—
Boston Proper	**10**	**1,768**	545	365	123	329	**175**	36
Central	10	1,203	375	216	87	211	134	26
Back Bay	—	565	170	149	36	118	41	10
Southwest Sector	*	**15**	15	—	—	—	**1,480**	—
Jamaica Plain	*	*	15	—	—	—	632	—
South Sector	*	*	*	257	216	164	**164**	21
South Boston	5	247	56	56	26	26	15	5
Roxbury	31	1,177	565	195	180	139	26	15

* Traffic is listed elsewhere in table.

Origin and Destination Count 65 — Columbus Avenue (East of Egleston Square)

Total Vehicles — 8,131

and \ Between	South Sector	South Boston	North Dorchester	South Dorchester	Mattapan	Roxbury	Southwest Sector	Jamaica Plain
South Sector	**1,410**	46	84	366	488	1,387	*	*
South Boston	*	—	—	8	15	23	*	*
Roxbury	*	*	84	358	473	114	*	*
Southwest Sector	**328**	38	30	76	76	76	—	—
Jamaica Plain	259	30	30	61	76	61	—	—
West Sector	**2,530**	8	214	610	815	388	**23**	—
Fens	815	—	46	214	297	107	8	—
Brookline	617	8	61	99	191	175	—	—
Brighton	373	—	46	130	69	30	8	—
Boston Proper	**2,979**	—	114	503	1,036	183	**84**	69
Central	1,417	—	61	290	541	122	38	30
Back Bay	1,562	—	53	214	495	61	46	38
Northwest Sector	**312**	—	23	53	84	38	8	—
North Sector	**442**	—	15	69	152	69	**15**	15

Origin and Destination Count 66 — Dorchester Avenue (North of Andrew Square)

Total Vehicles — 5,365

and \ Between	North Sector	Northwest Sector	West Sector	Boston Proper	Central	Back Bay	South Sector	South Boston
Boston Proper	**20**	—	20	41	41	41	*	*
Back Bay	20	—	20	*	41	—	*	*
Southwest Sector	**10**	—	—	**193**	173	20	**173**	31
Jamaica Plain	10	—	—	71	61	10	61	10
South Sector	**650**	**122**	**142**	**3,119**	2,723	396	**875**	875
South Boston	61	—	112	376	193	183	*	193
Roxbury	20	—	—	102	81	20	122	122
North Dorchester	61	10	10	458	407	51	163	163
South Dorchester	71	31	—	956	895	61	193	193
Neponset	31	—	—	71	71	—	10	10
Mattapan	20	10	—	163	163	—	71	71

* Traffic is listed elsewhere in table.

Origin and Destination Count 67 — Dorchester Avenue (South of Andrew Square)

Total Vehicles — 3,125

and \ Between	Southwest Sector	South Sector	South Boston	Roxbury	North Dorchester	South Dorchester	Neponset	Mattapan
North Sector	**4**	**491**	4	—	63	58	18	4
Northwest Sector	—	**112**	—	—	45	18	13	—
West Sector	—	**103**	4	—	27	9	—	—
Boston Proper	**18**	**1,719**	9	18	340	304	85	13
Central	18	1,527	9	13	286	264	80	9
Back Bay	—	192	—	4	54	40	4	4
South Sector	**13**	**665**	625	4	304	125	31	9
South Boston	13	*	36	4	290	121	31	9
Roxbury	—	*	*	—	—	4	—	—

Origin and Destination Count 68 — Boston Street (South of Andrew Square)

Total Vehicles — 3,160

and \ Between	Boston Proper	Central	Southwest Sector	South Sector	South Boston	Roxbury	North Dorchester	South Dorchester	Mattapan
North Sector	—	—	**26**	**273**	—	17	94	68	—
Northwest Sector	—	—	**9**	**102**	—	9	17	9	43
West Sector	**26**	26	—	**128**	51	—	26	17	—
Boston Proper	—	—	**111**	**1,580**	—	85	384	401	214
Central	—	—	102	1,504	—	77	376	384	205
Back Bay	—	—	9	77	—	9	9	17	9
Southwest Sector	*	*	—	**68**	68	—	—	—	—
South Sector	*	*	*	**837**	811	94	299	154	102
South Boston	—	—	*	*	—	68	299	154	94
Roxbury	*	*	—	*	*	—	—	—	9

* Traffic is listed elsewhere in table.

ORIGIN AND DESTINATION COUNT 69 — MASSACHUSETTS AVENUE (NORTH OF EDWARD EVERETT SQUARE)

Total Vehicles — 11,828

Between / and	South Sector	South Boston	North Dorchester	Roxbury	South Dorchester	Neponset	Quincy	Southwest Sector
South Sector	**1,906**	*	898	1,752	393	84	224	84
South Boston	224	—	28	196	—	—	—	—
North Dorchester	*	*	28	*	126	14	14	28
Roxbury	*	*	617	98	266	70	210	56
West Sector	**2,929**	154	771	70	758	112	533	—
Fens	771	14	140	42	210	14	70	—
Boston Proper	**5,199**	70	1,121	182	1,261	182	954	**112**
Central	1,962	—	378	98	490	70	294	56
Back Bay	3,237	70	743	84	771	112	660	56
Northwest Sector	**673**	28	266	14	126	28	84	—
North Sector	**883**	42	154	28	168	42	140	42

ORIGIN AND DESTINATION COUNT 70 — COLUMBIA ROAD (NORTH OF DUDLEY STREET)

Total Vehicles — 10,587

Between / and	South Sector	South Boston	Roxbury	North Dorchester	South Dorchester	Mattapan	Southwest Sector	West Sector
South Sector	**3,205**	*	*	*	687	319	*	*
South Boston	1,474	—	*	*	368	159	*	*
Roxbury	908	74	61	*	147	37	*	*
North Dorchester	2,530	663	417	503	172	123	*	*
Southwest Sector	**835**	577	49	209	—	—	—	—
Jamaica Plain	221	131	12	74	—	—	—	—
West Sector	**1,523**	314	49	467	233	160	—	—
Fens	282	12	12	123	37	25	—	—
Brighton	405	270	12	61	37	12	—	—
Cambridge	479	—	25	123	135	74	—	—
Boston Proper	**3,537**	—	368	762	713	528	**467**	**61**
Central	2,444	—	282	442	455	430	405	61
Back Bay	1,093	—	86	319	258	98	61	—
Northwest Sector	**295**	—	12	123	37	37	—	—
North Sector	**590**	—	25	147	123	74	74	—

* Traffic is listed elsewhere in table.

ORIGIN AND DESTINATION COUNT 71 — DUDLEY STREET (WEST OF COLUMBIA ROAD)

Total Vehicles — 3,778

Between / and	South Sector	Roxbury	North Dorchester	South Dorchester	Quincy
North Sector	**153**	36	56	20	24
Northwest Sector	68	—	52	—	12
West Sector	**690**	48	412	64	88
Fens	210	24	133	20	12
Brighton	84	4	40	8	12
Boston Proper	**707**	105	311	96	84
Central	485	93	182	80	60
Back Bay	222	12	129	16	24
Southwest Sector	**173**	76	89	—	—
South Sector	**1,987**	743	1,244	—	—
South Boston	206	161	44	—	—
Roxbury	1,058	76	981	—	—
North Dorchester	145	—	145	—	—

ORIGIN AND DESTINATION COUNT 72 — HANCOCK STREET (WEST OF DORCHESTER AVENUE)

Total Vehicles — 10,238

Between / and	South Sector	North Dorchester	South Dorchester	Neponset	Milton	Quincy
North Sector	**681**	62	83	21	41	330
Northwest Sector	444	—	62	21	41	144
West Sector	**1,732**	124	124	196	31	744
Boston Proper	**4,371**	124	424	196	124	1,959
Central	2,474	62	186	144	83	1,175
Back Bay	1,897	62	238	52	41	784
Southwest Sector	**72**	52	—	—	—	21
South Sector	**2,938**	1,577	568	289	93	981
South Boston	444	62	113	41	21	350
Roxbury	713	72	144	52	31	258
North Dorchester	*	155	310	196	41	372

* Traffic is listed elsewhere in table.

Origin and Destination Count 73 — Dorchester Avenue (North of Hancock Street)

Total Vehicles — 5,989

Between / and	South Sector	North Dorchester	South Dorchester	Neponset	Mattapan	Milton	Quincy
North Sector	**403**	17	42	17	—	34	135
Northwest Sector	**193**	8	42	—	—	8	50
West Sector	**370**	42	101	25	—	34	84
Boston Proper	**2,962**	193	320	151	17	218	1,060
Central	2,642	151	286	151	17	168	934
Back Bay	320	42	34	—	—	50	126
Southwest Sector	**50**	50	—	—	—	—	—
South Sector	**2,011**	992	437	193	50	168	462
South Boston	1,321	185	210	143	50	92	320
Roxbury	92	25	25	—	—	—	34
North Dorchester	*	168	185	42	—	59	109

Origin and Destination Count 74 — Freeport Street (East of Dorchester Avenue)

Total Vehicles — 9,936

Between / and	South Sector	North Dorchester	South Dorchester	Neponset	Milton	Quincy
North Sector	**697**	14	14	57	—	498
Northwest Sector	**313**	—	14	—	—	185
West Sector	**1,380**	43	43	28	—	683
Boston Proper	**5,482**	128	57	185	85	3,517
Central	3,802	71	43	100	57	2,464
Back Bay	1680	57	14	85	28	1,053
Southwest Sector	**85**	14	—	14	—	57
South Sector	**1,979**	840	157	199	43	1,067
South Boston	726	85	14	71	—	370
Roxbury	527	43	—	43	14	299
North Dorchester	*	57	71	71	14	384

* Traffic is listed elsewhere in table.

Origin and Destination Count 75 — Dorchester Avenue (South of Adams Street)

Total Vehicles — 3,261

Between / and	Southwest Sector	South Sector	South Dorchester	Neponset	Mattapan	Milton	Quincy
North Sector	—	**177**	116	4	4	22	13
Northwest Sector	—	**112**	77	—	—	4	4
West Sector	—	**293**	185	4	4	56	30
Boston Proper	—	**1,294**	719	13	34	164	69
Central	—	1,135	719	9	34	164	56
Back Bay	—	159	—	4	—	—	13
Southwest Sector	—	**43**	9	4	—	—	4
South Sector	*	**1,342**	1,062	22	52	177	26
South Boston	9	318	232	—	9	52	9
Roxbury	—	90	69	—	9	4	4
North Dorchester	13	749	577	17	30	90	13
South Dorchester	*	*	151	—	4	30	*

Origin and Destination Count 76 — Adams Street (South of Dorchester Avenue)

Total Vehicles — 4,335

Between / and	South Sector	South Dorchester	Neponset	Milton	Quincy
North Sector	**346**	52	33	33	124
Northwest Sector	**216**	46	26	13	52
West Sector	**438**	59	85	26	157
Boston Proper	**1,582**	209	222	170	529
Central	1,203	157	176	105	392
Back Bay	379	52	46	65	137
Southwest Sector	**46**	13	—	7	7
South Sector	**1,707**	666	412	137	497
South Boston	320	72	46	13	118
Roxbury	376	52	91	13	150
North Dorchester	758	248	229	78	150
South Dorchester	*	46	46	33	59

* Traffic is listed elsewhere in table.

Origin and Destination Count 77 — Neponset Bridge
Total Vehicles — 14,279

Between / and	South Sector	Quincy	Braintree	Weymouth
North Sector	**992**	642	47	104
Northwest Sector	**425**	274	9	9
West Sector	**1,917**	1,237	85	170
Boston Proper	**5,402**	3,372	302	567
Central	3,851	2,569	283	425
Back Bay	1,351	803	19	142
Southwest Sector	**283**	236	—	28
South Sector	**5,260**	4,259	104	330
South Boston	717	491	28	76
North Dorchester	860	651	19	47
Roxbury	689	567	9	38
South Dorchester	1,454	1,199	19	113
Neponset	1,369	1,181	28	57

Origin and Destination Count 78 — Granite Avenue (South of Marsh Street)
Total Vehicles — 2,654

Between / and	South Sector	Neponset	Milton	Quincy	Braintree
North Sector	**443**	9	125	112	49
Northwest Sector	**103**	—	31	31	—
West Sector	**188**	9	45	67	18
Boston Proper	**855**	18	300	174	147
Central	774	—	264	156	125
Back Bay	80	18	36	18	22
Southwest Sector	**36**	13	9	4	9
South Sector	**1,029**	277	376	255	54
South Boston	134	—	36	27	27
North Dorchester	165	—	94	36	13
Roxbury	210	4	49	72	4
South Dorchester	394	13	112	94	—
Neponset	277	27	67	22	9

Origin and Destination Count 79 — Washington Street (South of Adams — Lower Mills)
Total Vehicles — 2,713

Between / and	Southwest Sector	South Sector	Milton	Quincy	Randolph Avenue
North Sector	—	**73**	—	4	36
Northwest Sector	—	**62**	7	7	22
West Sector	—	**352**	185	40	33
Boston Proper	—	**562**	229	44	145
Central	—	414	149	33	127
Back Bay	—	149	80	11	18
South Sector	87	**1,577**	1,222	174	22
Mattapan	—	80	18	7	—
South Dorchester	18	1,178	975	73	11
Neponset	18	54	18	—	4

Origin and Destination Count 80—Talbot Avenue (West of Washington Street)
Total Vehicles — 2,530

Between / and	South Sector	South Boston	North Dorchester	Mattapan	South Dorchester	Neponset	Milton	Quincy
North Sector	**59**	—	—	6	36	3	—	6
Northwest Sector	**56**	—	—	3	41	—	—	6
West Sector	**655**	—	—	3	320	36	39	163
Boston Proper	**225**	—	—	6	115	6	21	30
Central	107	—	—	6	56	6	6	15
Back Bay	118	—	—	—	59	—	15	15
Southwest Sector	**445**	6	9	—	266	39	12	71
Jamaica Plain	240	6	—	—	127	15	12	44
Roslindale	68	—	3	—	47	—	—	15
West Roxbury	83	—	3	—	53	18	—	6
South Sector	**1,092**	53	62	397	1,110	47	80	133
Roxbury	237	—	—	9	130	3	15	33
North Dorchester	*	—	—	12	41	—	—	6
South Dorchester	*	30	*	284	243	24	47	36
Mattapan	*	18	*	—	*	21	15	30

* Traffic is listed elsewhere in table.

Origin and Destination Count 81 — Washington Street, Dorchester (at Railroad Bridge)

Total Vehicles — 3,561

and \ Between	South Sector	Roxbury	South Dorchester	Neponset	Mattapan	Milton
North Sector	**181**	—	116	7	14	36
Northwest Sector	**65**	—	43	—	14	—
West Sector	**470**	—	333	21	14	21
Fens	58	—	29	14	7	—
Boston Proper	**1,014**	22	666	58	72	109
Central	456	—	326	14	22	65
Back Bay	557	22	340	43	51	43
Southwest Sector	**166**	14	152	—	—	—
Jamaica Plain	116	—	116	—	—	—
South Sector	**1,665**	1,021	1,289	65	173	123
South Boston	137	—	123	—	7	—
Roxbury	*	—	753	36	94	80
North Dorchester	413	7	290	29	36	36
South Dorchester	*	*	29	—	36	7

* Traffic is listed elsewhere in table.

Origin and Destination Count 82 — Blue Hill Avenue (South of Columbia Road)

Total Vehicles — 11,343

and \ Between	South Sector	Milton	Quincy	Mattapan	South Dorchester	Southwest Sector	Hyde Park
South Sector	**2,179**	370	108	1,197	235	**363**	34
Mattapan	*	—	—	—	7	87	—
South Dorchester	*	—	—	*	—	27	7
North Dorchester	302	74	20	161	—	20	7
Roxbury	1,560	256	74	853	215	54	—
South Boston	303	40	13	168	13	61	20
Southwest Sector	*	40	7	87	27	**13**	—
Jamaica Plain	228	40	7	74	27	—	—
Boston Proper	**5,500**	948	256	2,031	491	**517**	87
Central	2,790	457	101	1,116	222	229	40
Back Bay	2,710	491	155	914	269	288	47
West Sector	**1,399**	215	141	437	175	**54**	—
Fens	242	20	27	67	34	13	—
Northwest Sector	**383**	67	20	108	40	**27**	7
North Sector	**800**	114	54	296	61	**108**	40

* Traffic is listed elsewhere in table.

Origin and Destination Count 83 — Morton Street (West of Blue Hill Avenue)

Total Vehicles — 7,196

Between / and	South Sector	Mattapan	South Dorchester	Milton	Quincy	Southwest Sector	Hyde Park
South Sector	**706**	579	151	101	38	*	13
Roxbury	226	113	25	13	—	—	—
North Dorchester	38	38	—	—	—	—	—
Mattapan	*	113	126	63	38	*	13
Southwest Sector	**1,046**	353	126	126	189	—	—
Jamaica Plain	617	214	76	101	76	—	—
Roslindale	353	88	38	25	113	—	—
West Sector	**3,843**	554	76	388	441	**13**	13
Fens	781	101	25	126	88	—	—
Brighton	567	139	13	50	63	—	—
Brookline	1,071	164	13	—	50	—	—
Boston Proper	**819**	151	38	227	50	**13**	13
Central	454	126	25	113	25	—	—
Back Bay	365	25	13	113	25	13	13
Northwest Sector	**428**	50	25	63	13	—	—
North Sector	**328**	50	13	50	13	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 84 — Blue Hill Avenue (South of Mattapan Square)

Total Vehicles — 15,431

Between / and	South Sector	Milton	Quincy	Southwest Sector	Hyde Park
South Sector	**4,238**	2,795	349	*	*
Mattapan	2,688	2,076	185	**114**	92
South Dorchester	725	427	78	57	36
North Dorchester	256	121	7	64	50
Roxbury	513	50	71	21	21
South Boston	334	114	7	28	28
Southwest Sector	**2,233**	1,188	299	**21**	14
Hyde Park	512	149	64	*	—
Roslindale	235	92	92	—	—
Jamaica Plain	1,308	889	121	14	14
Boston Proper	**4,373**	1,665	178	**228**	135
Central	2,375	960	100	128	78
Back Bay	1,998	705	78	100	57
West Sector	**3,150**	1,031	413	**57**	50
Fens	775	256	85	28	28
Northwest Sector	**470**	107	78	**21**	14
North Sector	**619**	100	43	**21**	21

* Traffic is listed elsewhere in table.

Origin and Destination Count 85 — Saratoga Street Bridge at Belle Isle Inlet

Total Vehicles — 2,541

and \ Between	North Sector	Winthrop	East Boston	Chelsea
North Sector	**1,523**	1,516	1,002	189
East Boston	1,002	1,002	—	—
Chelsea	189	189	—	—
Northwest Sector	**89**	89	—	—
West Sector	**173**	173	—	—
Boston Proper	**535**	535	—	—
Central	409	409	—	—
Back Bay	126	126	—	—
Southwest Sector	**58**	58	—	—
South Sector	**163**	163	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 86 — Bennington Street Bridge

Total Vehicles — 2,874

and \ Between	North Sector	East Boston	Winthrop	Revere
North Sector	**1,732**	1,636	80	965
East Boston	*	—	32	950
Chelsea	56	16	8	8
Everett	88	64	16	8
Boston Proper	**599**	24	8	176
Central	463	16	8	112
Back Bay	136	8	—	64
Northwest Sector	**120**	104	8	8
West Sector	**112**	48	24	16
Southwest Sector	**16**	—	—	—
South Sector	**295**	8	8	104

* Traffic is listed elsewhere in table.

Origin and Destination Count 87 — Chelsea Street Bridge, East Boston

Total Vehicles — 2,218

Between / and	North Sector	East Boston	Winthrop	Revere	Chelsea
North Sector	**1,372**	1,157	195	223	*
Chelsea	784	644	123	159	—
Everett	111	83	28	—	—
Charlestown	64	40	12	12	—
Boston Proper	**421**	151	171	56	12
Central	405	147	171	52	8
Back Bay	16	4	—	4	4
Northwest Sector	**143**	123	16	4	—
West Sector	**155**	107	44	—	—
Southwest Sector	**16**	12	4	—	—
South Sector	**111**	44	40	12	12

* Traffic is listed elsewhere in table.

Origin and Destination Count 88 — Meridian Street Bridge

Total Vehicles — 4,110

Between / and	North Sector	East Boston	Winthrop	Revere	Chelsea	Everett	Charlestown
North Sector	**1,877**	1,831	68	79	959	234	259
East Boston	*	—	22	79	919	234	255
Winthrop	*	*	—	—	39	—	4
Boston Proper	**750**	416	61	14	36	7	—
Central	628	499	47	7	32	7	—
Back Bay	122	97	14	7	4	—	—
Northwest Sector	**539**	517	22	—	—	—	—
Somerville	284	262	22	—	—	—	—
West Sector	**646**	564	61	4	4	—	—
Cambridge	291	252	32	—	—	—	—
Fens	75	68	—	—	4	—	—
Southwest Sector	**50**	32	14	—	—	—	—
South Sector	**248**	198	7	7	11	4	—
South Boston	93	72	4	—	7	4	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 89 — Chelsea Bridge

Total Vehicles — 14,493

Between / and	North Sector	Chelsea	Winthrop	Revere	Lynn	Everett	East Boston
North Sector	**1,179**	449	9	97	141	35	334
Charlestown	1,179	449	9	97	141	35	334
Northwest Sector	**334**	97	26	9	9	—	150
Somerville	229	70	26	9	9	—	97
West Sector	**2,605**	1,047	114	220	273	35	625
Cambridge	845	387	18	53	62	—	246
Fens	502	220	18	26	35	18	123
Boston Proper	**7,304**	2,675	176	1,091	1,109	273	845
Central	6,213	2,323	141	898	977	264	713
Back Bay	1,091	352	35	193	132	9	132
Southwest Sector	**475**	202	26	35	44	9	88
South Sector	**2,596**	1,030	62	361	**414**	79	299

Origin and Destination Count 90 — Prison Point Bridge

Total Vehicles — 9,956

Between / and	North Sector	Charlestown	East Boston	Everett	Chelsea	Northwest Sector	Somerville	Boston Proper	Central
Northwest Sector	**333**	204	64	—	21	—	—	*	*
Somerville	333	204	64	—	21	—	—	*	*
West Sector	**4,350**	1,385	473	419	677	**193**	118	**64**	64
Cambridge	2,241	850	226	226	398	140	75	43	43
Fens	333	54	43	43	32	—	—	—	—
Boston Proper	**2,868**	494	54	376	419	**258**	161	—	—
Central	860	215	11	118	97	118	75	—	—
Back Bay	2,008	279	43	258	322	140	86	—	—
Southwest Sector	**451**	118	11	75	21	**43**	32	—	—
South Sector	**1,246**	290	75	236	193	**150**	118	—	—

Origin and Destination Count 91 — Cambridge Street, Charlestown (West of Rutherford Avenue)

Total Vehicles — 3,246

Between / and	North Sector	Charlestown	East Boston	Chelsea	Everett	Northwest Sector	Somerville	Boston Proper	Central	Back Bay
North Sector	**167**	167	7	7	14	*	*	**139**	118	21
Charlestown	*	97	7	7	14	*	*	132	118	14
Northwest Sector	**709**	389	42	70	104	—	—	**118**	111	7
Somerville	655	341	42	70	97	—	—	118	111	7
West Sector	**1,890**	1,112	42	104	257	**7**	7	**35**	35	—
Cambridge	940	528	28	63	139	—	—	28	28	—
Fens	63	14	1	—	14	—	—	—	—	—
Brighton	592	445	—	14	21	7	7	—	—	—
Southwest Sector	**42**	14	—	—	7	—	—	—	—	—
South Sector	**104**	35	—	7	14	**35**	35	—	—	—

* Traffic is listed elsewhere in table.

Origin and Destination Count 92 — Main Street, Charlestown

Total Vehicles — 8,133

Between / and	North Sector	Charlestown	Everett	Malden	Northwest Sector	Somerville	Medford	West Sector
North Sector	**380**	380	63	95	**1,756**	1,060	459	**332**
Charlestown	*	63	63	95	1,281	665	427	174
Chelsea	—	—	—	—	95	79	—	32
Everett	*	*	—	—	237	174	32	47
Malden	*	*	—	—	16	16	—	—
Boston Proper	**728**	127	—	380	**3,291**	775	1,075	**332**
Central	554	79	—	300	2,863	712	853	300
Back Bay	174	47	—	79	427	63	222	32
Northwest Sector	*	*	*	*	**32**	32	32	*
Somerville	*	*	*	*	*	—	32	*
West Sector	*	*	*	—	**111**	63	—	—
Southwest Sector	**32**	16	—	16	**79**	47	16	—
South Sector	**174**	63	—	95	**823**	253	222	**63**

Origin and Destination Count 93 — Malden Bridge

Total Vehicles — 7,907

Between / and	North Sector	Everett	Chelsea	Revere	Malden	Northwest Sector	Somerville	Medford
North Sector	**1,215**	543	100	14	128	**220**	200	14
Charlestown	1,115	529	100	14	128	—	—	—
West Sector	**1,943**	414	314	29	286	—	—	—
Cambridge	956	214	271	—	171	—	—	—
Fens	286	71	29	14	29	—	—	—
Boston Proper	**3,472**	1,072	157	14	615	**86**	—	43
Central	3,001	858	157	14	557	86	—	43
Back Bay	471	214	—	—	57	—	—	—
Southwest Sector	**228**	143	14	—	14	—	—	—
South Sector	**743**	243	—	—	114	—	—	—

* Traffic is listed elsewhere in table.

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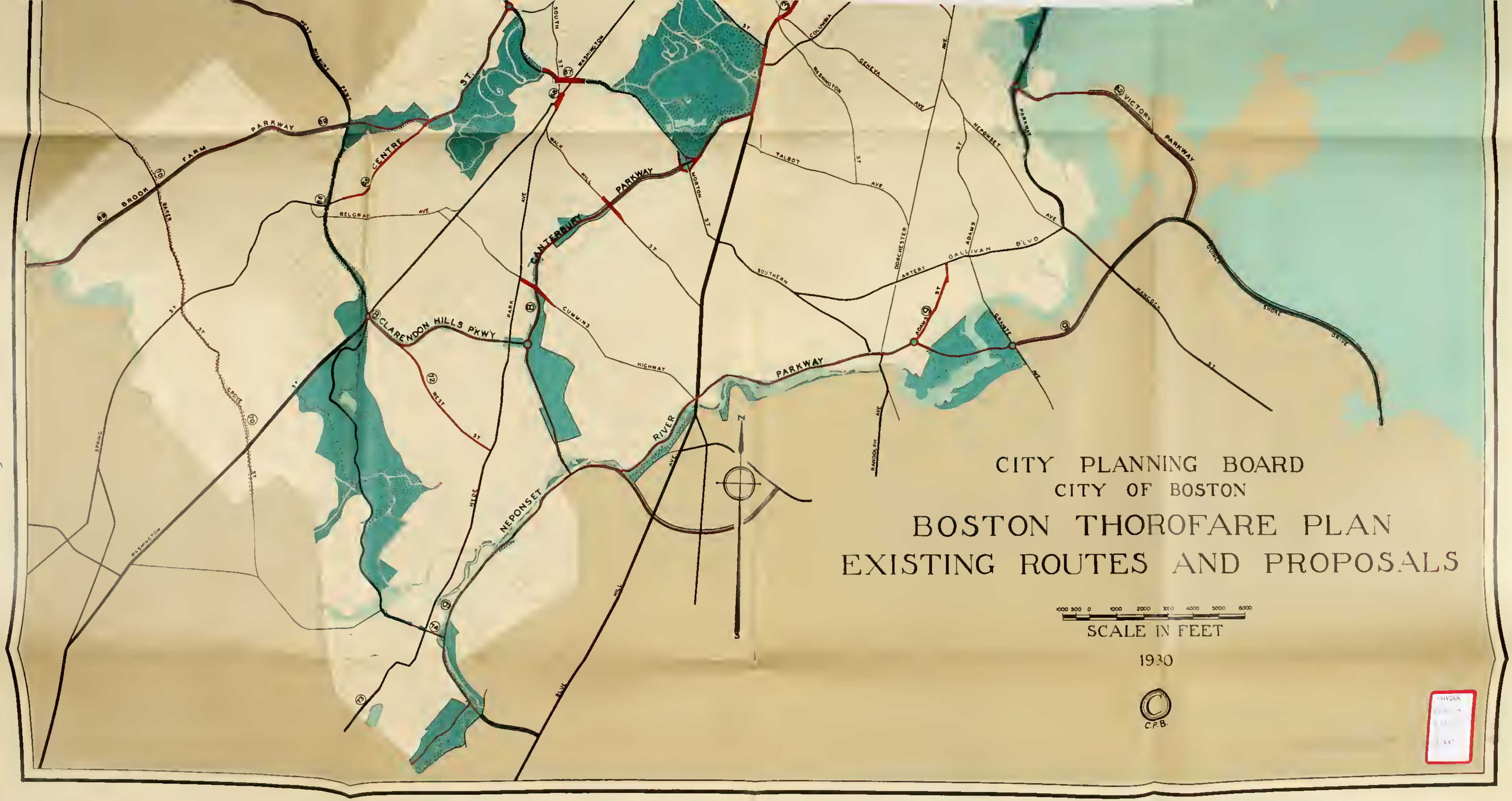
CITY PLANNING BOARD
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RIVER AVE
BLUE HILL AVE
GALLIVAN BLVD
SOUTHERN ARTERY
DORCHESTER AVE
ADAMS ST
GRANITE AVE
HANCOCK ST
QUINCY SHORE DRIVE
VICTORY PARKWAY
NEPONSET AVE
TALBOT AVE
WASHINGTON ST
GENEVA AVE
COLUMBIA
WEST ROXBURY PKWY
SOUTH ST
WALK HILL ST
BAKER ST
GROVE ST
SPRING ST
RANDOLPH AVE

CITY OF BOSTON PRINTING DEPARTMENT